

In This Issue—*Keeping Them Sold Through Service*

MOTOR AGE

Vol. L
Number 3

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CHICAGO, JULY 22, 1926

Thirty-five Cents a Copy
Three Dollars a Year

**Step into a second hand
sales room one year from
now and ask what your
car is worth if it does
not have an all-steel—all-
vision body—**

**Think of how much more
an eight will be worth
than a six.**

Edward S. Jordan

President
Jordan Motor Car Company, Inc.
Cleveland



A Characteristic Pose in Every Civilized Land

HUNDREDS of thousands who see this will immediately recognize the pose, which is a familiar sight in practically every branch of industry. Perhaps you have seen it many times in your own business, or it may have become familiar through having seen it in garages and automobile repair shops.

The steel worker twenty stories in the air and the man who is attaching metal step plates in the subway—the man who builds your desk or chair and the plumber who repairs your boiler or installs your hot water heater—the amateur who “tinkers” around the house and the skilled mechanic in the tool room—

all are shortening hours and reducing labor by the use of Black & Decker Electric Tools.

We offer in evidence of the superiority of Black & Decker Portable Electric Tools the fact that they are more widely used than any others. We do not ask you to accept our statement of this fact. You can prove this yourself by watching for the characteristic pose illustrated above.

TO MAKE SURE THAT IT IS A BLACK & DECKER PORTABLE ELECTRIC TOOL THAT IS BEING USED, LOOK FOR “*The Pistol Grip and Trigger Switch*” AND THE HEXAGONAL CASE.

THE BLACK & DECKER MFG. CO.

TOWSON, MD., U. S. A.

Black & Decker Mfg. Co., Limited, Toronto, Ontario

Black & Decker, Limited, London, England

Branch Offices and Service Stations in:

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Products:

PORTABLE ELECTRIC DRILLS
ELECTRIC VALVE REFACERS

ELECTRIC TAPPERS
ELECTRIC GRINDERS

ELECTRIC SCREW DRIVERS
ELECTRIC SOCKET WRENCHES

A telephone call to the supply house from which you purchase your tools will secure a demonstration without obligation

WEAVER

Your Business is our Business

WHEN you buy Weaver equipment we're just as vitally interested in its giving you maximum service as you are.

We want you to be so well satisfied with the Brake Service Machine you buy—for example—that when you need a new jack or press you'll insist on having a Weaver.

The Weaver line now includes more than fifty items—and it's always growing. So you see it's up to us to make every piece of Weaver equipment you buy help to sell you others.

Even the highest priced car, no matter how well built, requires maintenance service. So too, with garage devices.

Weaver service equipment is backed by our experience of fourteen years' manufacturing and we have built up a maintenance service that is unique in scope and efficiency.

A Special Service Department is maintained at the Weaver factory, Springfield, Illinois, which is prepared to give twenty-four hour service on practically all orders.

Weaver Manufacturing Co.

Springfield, Illinois, U. S. A.

Weaver Canadian Co., Ltd., Chatham, Ont.

Our new Service Parts Catalog is just off the press. If your jobber's salesman does not have one to which you can refer, write us for a copy



Relining brakes on the Weaver Brake Service Machine in the new Weaver Laboratory Garage, built to serve you.

"Used-car problem much simplified—because the Stutz has no competitor"

Read the testimony of

Lynn C. Buxton

STUTZ Distributor
Los Angeles

IF, after reading Mr. Buxton's letter, you'll turn to the talk on the used-car problem in our book, "The Profit in Selling the NEW STUTZ", you will concede us the privilege of an "I told you so".

The hub of the "used-car problem" is price-cutting, and the reason for price-cutting is desperate competition.

The New SAFETY STUTZ cannot be duplicated by any dealer in another car. So, there is no real competition, there is no call for excessive trade-in allowances, there is no problem of selling undesirable used-cars at unattractive prices.

We invite correspondence from representative automobile merchants who are appealed to this solution of the used-car difficulty.

STUTZ MOTOR CAR CO.
of AMERICA, Inc., Indianapolis

Stutz Motor Car Company of America, Inc.,
Indianapolis, Indiana.

Dear Sirs:

You will, I am sure, be interested to know that we are not only handling the Stutz car exclusively, but we are making a very desirable profit on our business while doing so. The crucible by which the desirability of any motor car account is decided is the dealer's profit-and-loss statement, and I want you to know that the profit is showing up very satisfactorily in our business.

Our Used-Car problem is very much simplified by the fact that the Stutz seems to have very little competition, in that if we sell a man on the mechanical features of the car, he must buy our car because he can get no other containing these features. This reduces used-car losses, and greatly simplifies our used-car problem.


The Service expense on the New Stutz is really too low to be credible. This, of course, adds to the profit we are making on the New Stutz.

We find dealer connections very easy to close, and, in fact, we have our choice of the outstanding, and best dealers in each of the various communities where we desire to close dealer connections.

I am quite sure that this condition of a satisfactory profit being made from month to month is not only with us now, but is going to be a lasting and permanent condition, existing over a period of many years.

I cannot close this letter without commenting on the happy co-operation of all departments of your organization, how helpful they are, and how understanding of the dealer's needs. I can say that this is the all-around nicest factory connection I have had in my twenty years in the automobile business.

Yours very truly,

Lynn C. Buxton


New
SAFETY STUTZ

MOTOR AGE

Reg. U. S. Pat. Office

Vol. L

No. 3

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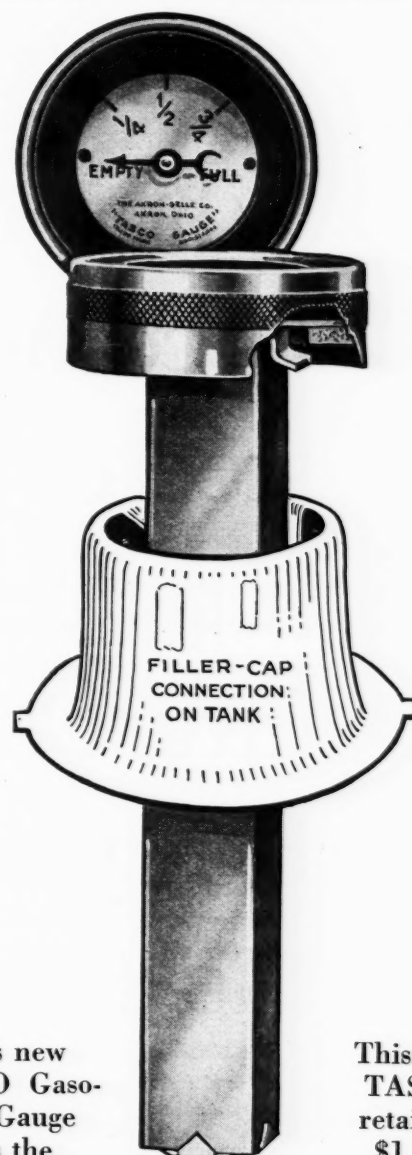
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New TASCO



This new
TASCO Gasoline Gauge
fits the

This new
TASCO
retails at
\$1.50!

CHEVROLET—1926 Model "V" and all Models of Star

TASCO gauges are so simple they can't get out of order,—therefore, once sold, they stay sold and bring in new business.

"Type K" for 1926 Chevrolets and "Type J" for all Stars have a bayonet type connection to replace the Easy-on filler cap. They are licensed under the Easy-on patent.

Great care has been taken to provide a permanent beautiful finish for these models. These new TASCO gauges, like the other models, are guaranteed for the life of the car.

THE AKRON-SELLE COMPANY

"41 Years in Business"

Akron, Ohio

MAYDWELL AND HARTZELL, Inc.

Los Angeles

Pacific Coast Representatives

San Francisco

Wherever safety has
become a vital factor
steel construction has
replaced wood. The
future of the All-Steel
Body is evident to
those who see ahead
as clearly as they see
behind

EDWARD G.

BUDD

MFG. CO.

Philadelphia and Detroit*Originators of the All-Steel Full-Vision Automobile Body*

Once
You See
***The* PRESIDENT**
You Will
Be Unable to
See Anything Else

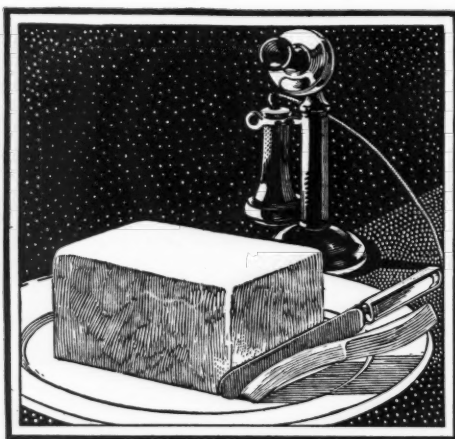


STUDEBAKER

Business slumped
Then LONG DISTANCE sold

\$ 67,000

WORTH OF BUTTER



THE butter market was in that condition dreaded in every business. Orders had fallen off. Hardly a buyer could be found who would purchase outright; the most that was offered was to take the product on consignment. Then it was that a St. Louis wholesale house turned to the telephone. Their answer to the slump was a well-planned campaign of long distance calls, and this one telephone drive sold *outright* \$67,000 worth of butter!

"WE WISH to thank your representative for his aggressiveness," writes this St. Louis concern. "He talked selling by Long Distance until we were convinced."

There is no more effective answer to slumping business than a campaign of long distance calls. They enable you to concentrate weeks of travel into days of intensive, effective work. Your campaign can be transferred at will, and almost instantly, from one trade territory to any other in any part of the country. Long distance solicitations restore confidence and make goodwill. They find what you want to buy. They make sales. They do all the most persuasive human voice can do, and add to it country-wide range. Do you know from experience how your sales may be

speeded up, how slumps may be prevented in advance by telephone? Have you organized your telephone resources? Have your important men been trained in the essentials of telephone selling and buying? If business should slow down, do you know how long it would take to establish telephone contact with your important customers in every state in the Union?

The Commercial Department of the local Bell company will gladly make a free study of the productive telephone opportunities in your business. In the meantime, the telephone on your desk will connect you promptly with anyone wanted in 70,000 towns and cities. What distant concern or executive would it be to your profit to talk to, now? *Number, please?*

BELL LONG DISTANCE SERVICE





Great two-fisted tongs, on their own chain hoist, wrestle with Timken Steel in the "Continuous Furnace" which is used at one stage of manufacture

Brawn for Your Car

Bearings are put wherever wear tends to focus in automobiles and motor trucks. That is what bearings are for, of course. That is certainly where the finest steel should be.

The steel for Timken Bearings is made under Timken control, right in the Timken steel mill. The largest output of electric furnace steel in the world is required for Timken Bearing production. At the rate of 132,000 daily, Timkens are being applied to every type of mechanical device, including 91% of all makes of motor vehicles in America! Timkens go into transmissions, differentials, pinion mountings, worm drives, rear wheels, front wheels, steering pivots and fans.

Timkens free these units of needless friction and wear, also saving power and lubricant. Timken Taper assures higher resistance to every destructive element, including *thrust* or sidewise forces. *TIMKEN POSITIVE ROLL ALIGNMENT* keeps shafts, gears and wheels turning quietly, "like new." Timken-equipped cars and trucks are simpler, less bulky, more accessible.

When a car or truck is Timken-equipped you know that it has excellence of design and material at the very places where it counts for so much toward permanent economy.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

TIMKEN *Tapered Roller* BEARINGS



Bock is the
ideal replace-
ment bearing

Your Car— Guaranteed

SUPPOSE, without an increase in price, you could guarantee every car you sold *against replacement of any part within three years, due to wearing out or failure.*

Of course you couldn't begin to supply the demand. And yet, with Bock Bearings in your car, and every other part equally dependable, you could safely make such a guarantee. Could you with your present bearings?

THE BOCK BEARING COMPANY, TOLEDO, OHIO
Members National Standard Parts Association

B**O****C****K**

TAPER ROLLER BEARINGS

The Call of the Open Road

THERE is a universal desire on the part of every red blooded man or woman to get out in the open and follow the "OPEN ROAD"—the road to new experiences, to recreation and to all the myriad delights that come only in the freedom of the out-of-doors. This latent desire becomes an active urge when spring opens the roads to travel and the less accessible places become easily reached.

In San Francisco, during the recent week's celebration of the "Call of the Open Road," people by the tens of thousands crowded the show rooms of the dealers on automobile row. These people were eager for a new suggestion on camping, an up-to-the-minute idea on fishing, or a recent development in new cars and equipment.

From the point of view of the seller of automobiles the greatest significance of this interest in the "OPEN ROAD" lies in the fact that the best way to answer the "Call of the Open Road" is the automobile.

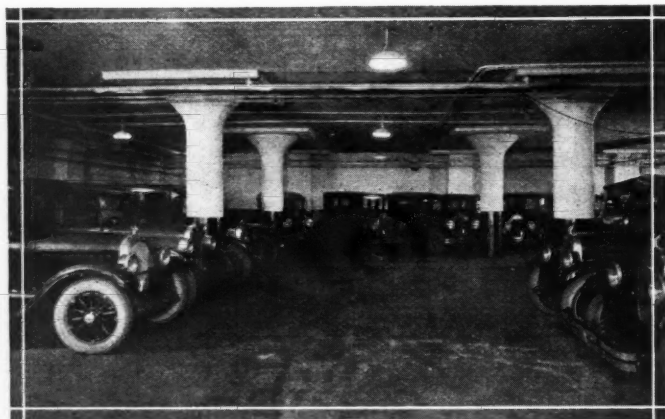
The encouragement of the idea of getting out into the open means the encouragement of the use of the automobile. And how can we escape the conclusion that the use of the automobile, as it piles up the miles on the speedometer, brings the owner of that car just so much nearer the need of a new car.

But it is pleasant to look beyond the dollars and cents involved and to remember that to encourage the use of a car for out-of-doors recreation is to help owners get the greatest possible enjoyment from their motoring investment.

This striking photograph shows how the Howard Automobile Company, Buick distributors at San Francisco, capitalized the lure of the "Great Outdoors." The appeal was enhanced by special lighting effects.



Give the Used Car a Fair



Used car department of De Bear Motor Car Co., Philadelphia—a branch of the business for which the company has “a high respect”

*That's De Bear's Way—and He Finds
Resale Department Pay
It Like*

By K. H.

DE BEAR says: “Today more real brains, pressure and effort are needed in the used car, than in the new car departments”—

And so his used car salesman is much more than that; he's a former new car merchant of high rating and experience and is accorded the heartiest co-operation in all details.

HARRY J. DE BEAR, president of the DeBear Motor Car Company, handling Chrysler cars in the Philadelphia territory, has distinctive methods of selling used cars. He does not regard used cars, or the used car department in the same light as do many dealers and distributors.

Mr. DeBear says he feels that today *more real brains, pressure and effort are needed in the used car department than in the new car department.* Speaking of what the used car selling end means, he said:

“The average automobile company devotes virtually all its time and energies to the sale of new cars and to that department generally, making the used car department even less than a secondary consideration. It spends only a few dollars, as a rule, weekly, in advertising second-hand automobiles and a tremendous amount of money in advertising new cars. Hence, it has not created a used car market.”

As the disposal of cars taken in exchange is an entirely legitimate and necessary part of the automobile dealer's business under the present plan of selling, Mr. DeBear cannot see why more push is not exerted in their sale, especially as it is harder to sell used cars than new ones.

In other words, he maintains: “Don't treat your used car department like a step-child, or a nuisance, but give it a fair shake.”

Following out this attitude in a practical manner, Mr. DeBear employs as the head of his used car department not a “used car man,” but a merchant who, for 20 years, has had wide experience and success as a new car sales-

manager. The results have been entirely worth while.

While all used cars sold by the house are put in first-class running order, Chryslers are rebuilt in the Chrysler shops to almost new car condition, are refinished and positively *certified* to the buyer, this expression meaning that the company makes the sale with the reputation of the DeBear Motor Car Company behind it. These used Chryslers are sold on a standard thirty-day warranty, not “guarantee,” the same as are new cars. It is worthy of note that, for the six months prior to the writing of this article, not a dollar's worth of free work had been done on certified used cars sold.

There are several steps used by the DeBear Motor Car Company in selling used cars. There is no attempt, as on the part of many dealers, to switch the prospect at once to the purchase of a new car instead, or to begin immediately to “educate” the prospect to buying a new car. This is the reason: Mr. DeBear does not regard it good merchandising to lead a used car prospect at once away from the used car when it is the chief problem in sales.

It is believed better to get purchasers for used cars as they come. If they ask for used cars—sell them used cars. And, after all, the best sale is the one that satisfies the customer's needs and pocketbook. If he is treated fairly, he will be more than apt to purchase a new car from the company when he is ready for it.

If the prospect indicates that he is simply looking for a *good* used car, the salesman tries to sell him one of some make other than a Chrysler—and this, of course, helps to move that part of the stock.

If the prospect indicates that he is interested in *quality*, the salesman shows him the stock of reconditioned, refinished Chryslers, in order that he may make a selection. He may also be shown a Chrysler “feature” car, of which at least two models, one open and one closed, always are kept on hand in a special small department, or section for demonstration cars, just in the rear of the new car salesroom. “Feature” cars have been run only a short distance and are virtually as good as new in every small detail, and are fully backed by the reputation of the dealer.

It is impressed upon the prospect that, as Chrysler distributors, the house has its own pride in its stock and can have its pick of automobiles of this make, carried in exchange. It is also driven home to him that, considering the price asked, the values offered in rebuilt Chryslers are as good as the values in new cars of this

Chance

*Special Considerations in Case of
Better Than Treating
a Stepchild*

LANSING

make. The used car prospect, on this call, is not asked to buy a new car unless, after looking over the used cars he decides that he does not wish to buy a used car, but indicates that he might be open for the purchase of a new one.

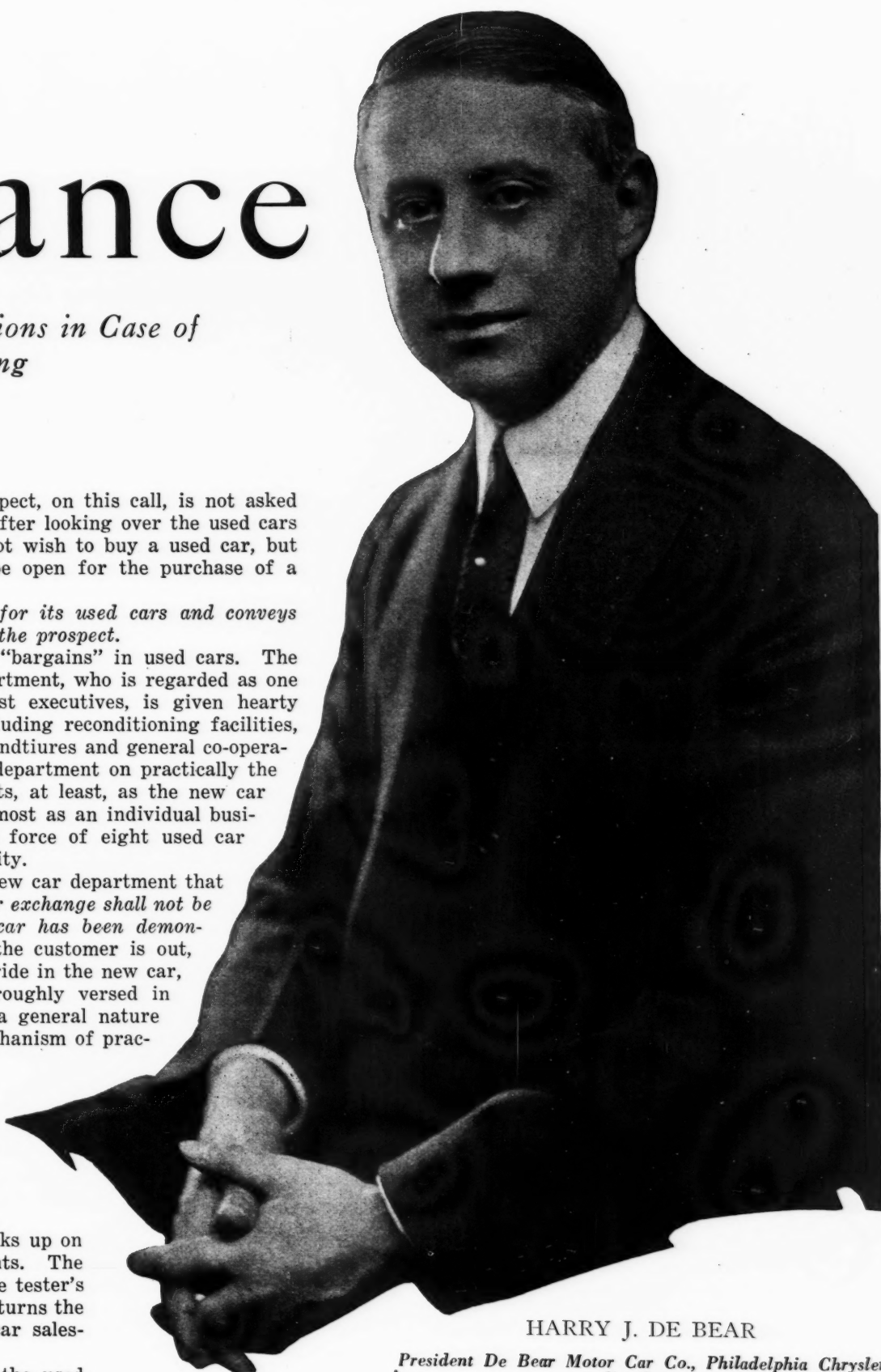
The house has respect for its used cars and conveys this idea, without fail, to the prospect.

The company offers no "bargains" in used cars. The head of the used car department, who is regarded as one of the company's strongest executives, is given hearty support in all details, including reconditioning facilities, advertising and other expenditures and general co-operation and he conducts his department on practically the same basis, in many points, at least, as the new car department, running it almost as an individual business. He has a separate force of eight used car salesmen, selected for ability.

There is a rule in the new car department that *the customer's used car for exchange shall not be appraised until the new car has been demonstrated and sold.* While the customer is out, taking his demonstration ride in the new car, the appraiser, a man thoroughly versed in motorcar construction of a general nature and familiar with the mechanism of practically all makes of automobiles, in fact, a used car mechanic-tester, has time to go over the exchange car in detail and make a careful appraisal of its value to the company. He tests out the car by driving it and checks up on its defects and good points. The used car manager gets the tester's report, sets the price and turns the report over to the new car salesmanager.

The appraisal price of the used cars is conveyed to the new car salesmanager by means of a code word, if it is thought that the car can be obtained on a smaller allowance basis than was at first set. When the new car salesman returns with the customer from his demonstration, the manager of the new car department has the price allowance figure ready to give him.

Used car buyers and prospects are followed up in prac-



HARRY J. DE BEAR

President De Bear Motor Car Co., Philadelphia Chrysler distributor

tically the same way and through the use of the same kind of office forms as are new car buyers and prospects. When a used car salesman is out calling on prospects, he jots down other names and addresses of possible prospects suggested and he goes out daily on such expeditions, just as do new car salesmen.

(Continued on page 34)



Trophy cup awarded Sands Motors Company, Seattle, by President E. R. Erskine, of the Studebaker Corporation, in recognition of the former's leadership in service efficiency. An investigation developed that Sands headed all Studebaker dealers in keeping owners satisfied

CAR owners are not content with merely buying a good car, but want the car backed up by efficient service on the part of the local dealer. Studebaker owners made this clear in answering a nation-wide questionnaire sent out last fall by President A. R. Erskine of the Studebaker Corporation, at South Bend, Ind.

The recent compilation of the replies also showed that the Sands Motors company of Seattle, Wash., leads in percentage of owners who are satisfied with the service received.

This information was transmitted to P. E. Sands, president of the Sands Motors company, in a letter received recently from Paul G. Hoffman, vice-president of the Studebaker Corporation.

Keeping

Studebaker Finds That Sands Motors Company, of Seattle, Leads All of Corporation's Dealers in Maintaining Owner Satisfaction
—An Interview with
Mr. Sands

By MANDUS E. BRIDSTON

When a man or a firm achieves unusual distinction, or accomplishes unusual things, the rest of us like to learn how he does it. We presuppose that he has some secret formula of success that others have overlooked; that his methods or system are unique.

With this in mind the writer visited Mr. Sands.

"How do you do it?"

He smiled quizzically. "To be frank, I was a much surprised man when I learned of the record my service department had made. Not that I'm not sold on my own organization, nor underestimate its efficiency, but I see so



DONALD F. GILMORE

Superintendent of the service department of the Sands Motor Company, Seattle

many things I would like to do to improve my service, that as yet, have not fully been realized.

"When you ask me how it is done, I am reminded of

Them SOLD Through Service

a story told me by my mother many years ago, that I have never forgotten. In early days, when there was much talk about resuming specie payment, Horace Greeley interrupted the fruitless agitation by saying laconically: "The way to resume specie payment is to resume specie payment."

"Likewise, the way to improve service is to give better service.

"When I want anything done, I do not waste my time and energy looking for magic means and methods, but I begin the job, and the details generally work themselves out better than if I tear my hair for days figuring out frills and folderols.

"There may not be much help to the 'other fellow' in that statement, but it's the truth.

"If there be a secret to the success of my service as measured by satisfied customers, it lies in the fact that my entire organization is made to realize the importance of this aspect of our sales work. For service in the last analysis, is sales—not only of automobiles, but of good-will and confidence. The dealer who underestimates the importance of efficient and prompt service to customers after the car is sold—can look for trouble ahead.

"It has also been my experience that it is a mistake to try to place the service department on a profit basis. I find it can't be done—and keep satisfied customers. A portion of the service overhead is an investment in customer good-will—an investment that pays bigger returns than most investments in the automobile business.

"The average purchaser of a car who finds it necessary to call upon the service man, does so with a chip on his shoulder. He seems to think that by bringing in his car for adjustments, etc., he is registering a kick against the car, even though he may not consciously have this on his mind at all. However, the feeling is there, just the same, and also unconsciously, perhaps, he assumes an abused air.

"It is our job to entirely do away with this attitude, or state of mind. We want to make the Sands Motors company the 'home' of Studebaker owners, where they may come for advice, mechanical assistance or what not, without any feelings of being under obligations or on the offensive. This applies particularly to minor matters pertaining to the car that may not acquire enough attention to come under the 'cost' class of work. We en-



Specimen letter used by the Sands Motor Company in its Efforts to keep its family of car owners happy

as you own it. With this in mind, we are taking this opportunity to acquaint you with the terms of the 'guarantee' on your car and our own service policy—a copy of which is enclosed herewith. In case there should be anything contained therein which is not perfectly clear to you please drop in or call the writer and we will gladly explain it in detail. A thorough understanding will be to our mutual advantage."

The letter then recommends some pointers in the care of a new car. The letter closes with this invitation: "And—by all means—become acquainted with us here in the service department. Our men—our facilities—our equipment, are to serve you—promptly and efficiently."

The second letter is sent out shortly before the expiration of the "thirty-day free service" period. It calls attention to the expiration date, and urges the car owner to drop in have a mechanic look over his machine for minor adjustments, the need of which may not be detected by the owner.

As soon as a service job has been completed and the car delivered to the owner, a postal card is sent him, signed by Mr. Sands, personally, as president of the corporation. In this message inquiry is made relevant to the work done, whether satisfactory or not. The car owner is invited—even urged—to file a complaint should

(Continued on page 34)

courage our patrons in these respects, however, despite the fact that in the aggregate the sum total of labor involved over a period of time amounts to considerable. To charge this labor overhead representing service during the 30 day free service period, as well as later in the matter of minor adjustments, to the car owners that make use of our car repair facilities at regular fees, is manifestly unfair to the latter; hence I feel that it is a perfectly legitimate investment to take a loss on the service department."

In order to encourage patrons to visit the service department without hesitancy, especially during the free service and guarantee period, the Sands Motors company sends out a series of three letters. The first goes out immediately after the sale, calling attention to the free service and guarantee features of the sales policy. It reads in part: "How do you like your new Studebaker? We know, of course, you like it, and it is our earnest desire to have you like the car just as long

Reasons for Generators

BUZ-Z-Z. Buz-z-z. Buz-z-z. A horsefly buzzed around Valvy's ear as he worked with an obstinate bearing that stubbornly refused to go into the end bracket of the generator he was repairing. The sun beat down on the roof of the shop where Barney and Bill Fixit's men were doing their bit to keep electrical systems working. Great drops of liquid heat clung to the Red Head's brow and rolled down into his eyes as he tried to steady his hand to put a new contact in a magneto interrupter.

It sure was a hot day.

As Red finished his job on the magneto, the phone rang and Barney answered. As he held the receiver the boys saw his face flush as he listened to the tirade that came over the wire and when he hung up, Valvy wanted to know all about it.

"It's that fellow Jed Wildman, who has that battery three and a half years old. We fixed up his generator ten days ago with a new field coil and by soldering the armature. Now it's shot again."

"One on us," said Red.

"How do you get that way?" Barney wanted to know.

"Well, if we'd had any sense, we would have not only fixed the generator, but also done some figuring to see what burnt it up. Then we could have told him that something wrong with his battery or wiring was burning up the generator, so that when we sent it back he could have fixed the other trouble. He might have put it on and burnt it up in spite of our warning, but we would have held an alibi. Now we have none.

When Jed drove up to Barney's shop the scene was hot and hectic for a short time, but the Red Head's good nature soon prevailed, the cause of the second burn out was explained and the job was fixed up again. Jed agreed to pay for the new coil and the boys' contributed the work.

When Wildman had driven away, Barney moped his brow and heaved a sigh of relief. "Some lesson for me," he said. "I may not always figure out the cause of trouble on each machine I fix, but believe me, I am going to try. And Barney hurried over to the house where Mrs. Smith had fixed up a big pitcher of cold lemonade for the hard working electricians.

That evening, when the sun had turned its relentless gaze on some of the other of earth's inhabitants and a cool breeze was making its way across the Smith farm, Barney brought up the question of generator overheating which had caused the comeback job that day.

"There's a number of causes," said Red. "A high resistance of some sort in the charging circuit does the most damage and does it quickest. When we got the generator charging again and found 20 volts across one cell it certainly showed a break in the circuit and if we had not soldered a short circuit across that cell, the generator would have been burnt up by the time Jed Wildman

Barney Gets a Come Back Job Which Burns Up Its Field Twice in Ten Days and the Red Head Explains the Cause

By A. H. PACKER

got home again. He was able to operate the ignition on 4 volts and when he gets a new battery his car will be O. K. again.

"The answer to this kind of overheating is that the battery is the real voltage regulator on nearly all cars. When anything happens to prevent a free flow of current through the battery, either due to a poor connection in the wiring or broken plate strap inside the battery it overloads the generator, for there is no place for the current to go.

"First the current drops off. That cuts down the losses in the armature and the voltage rises. That gives more

current to the shunt field and produces more voltage. Then we have still more field current and so the thing goes on until the machine may be showing 36 volts instead of 6 or 7. Now the heating of the field winding is proportional to the square of the voltage, so when this increases six times the heating increases thirty-six times. Reason enough for burning out something."

"Then what burns out the armature and melts the solder," Valvy wanted to know.

"The heat from the field," said Red. "I do not think the armature itself generates any more heat or even as much as in normal operation, but it is surrounded by excess heat which also prevents the heat generated in the armature getting away.

"There is another way in which current causes overheating but the damage is never so bad. Too much charging current will overheat the armature without doing harm to the field unless the charge is very much above normal. A current which overheats the armature slightly will cause some of the solder to be thrown from the commutator bars. This is sometimes seen as small silvery specks sticking to the leads and field winding. It is also noticed by inspecting the commutator, when it will be seen that the solder is no longer flush with the top of the slots in which the ends of the armature coils are placed.

"Sometimes it is thought that the current is too much for the machine when the real cause is in a rewound armature where the wire size is not right and the smaller wire with higher resistance causes overheating with 10 or 12 amperes flowing to the battery. An armature that

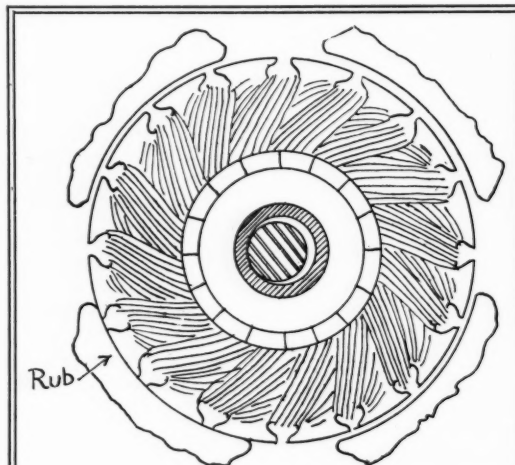


Fig. 2

A worn bearing may allow armature to rub only when magnetic effect of fields is exerted.

s Overheating

is suspected of having small wire in it can be tested if another good armature is available for comparison. This sketch (Fig. 1) shows a simple way of getting an idea of the comparative resistance of two armatures.

"In this sketch test wires are shown touching commutator bars at ninety degrees from each other. This is correct for a four pole machine, but in a two pole machine the armature would be checked by making contact at opposite commutator bars. Now suppose we test a suspected armature and find that one cell of the battery or two volts sends 12 amperes through the winding with contact made at the brush positions. We may want to vary the contact point a bar or two and find the bars where the least current is obtained.

"We next try an armature that is known to be working satisfactorily. If it also shows 12 amperes the suspected armature is apparently O.K. as far as wire size is concerned. In making these tests four volts could be used if the ammeter scale is capable of showing the reading. If a smaller size wire has been used and the same or greater number of turns used, the difference in current reading will be 25 per cent or more. Accordingly, if the questionable armature has small wire and shows 12 amperes, the good armature should show about 15 amperes.

"Another cause of overheating that is difficult to find is also due to rewinding, but in this case is not a fault of the winding but of the core. If the rewound armature has at some time rubbed on the pole pieces so badly that the laminations have become burred over and shorted on each other, there may be overheating on account of eddy currents which circulate through the iron part of the armature."

"Looks like rewinding causes a lot of trouble," said Barney.

"Not when it's done right," said Red. "But it takes nearly as much engineering to do the job right as to make the generator in

BILL FIXIT STORY No. 22

PREVIOUS installments in this series by A. H. Packer were published March 19, April 2, April 16, May 7, May 21, June 18, July 30, August 13, September 3, September 24, October 22, December 10, and December 31, 1925; also February 11, March 11, April 1, April 22, May 20, June 10 and July 1, 1926.

SYNOPSIS: Bill Fixit's electrical trouble shooting men start on a trip in a Speedway car. They stop at various places along the way and in a mining community are robbed of all their money. This necessitates getting a job with the local electrician, to whom they give some helpful information gained in working in Bill Fixit's garage. Directional radio is used by government agents in locating a gang of crooks and the boys' money is recovered. The trip is continued and the night after leaving the mining town they stop with Barney Oldfield Smith, an amateur race driver and help him with a magneto job, where a new condenser is needed. After getting a number of electrical pointers from Bill Fixit's men, Barney decides to open an electrical shop. Several jobs come in, the service work increases and a stock of electrical accessories is added. At Barney's request, the Red Head explains simple generator principals and tells a few things about fixing third brush generators that charge too much or not enough.

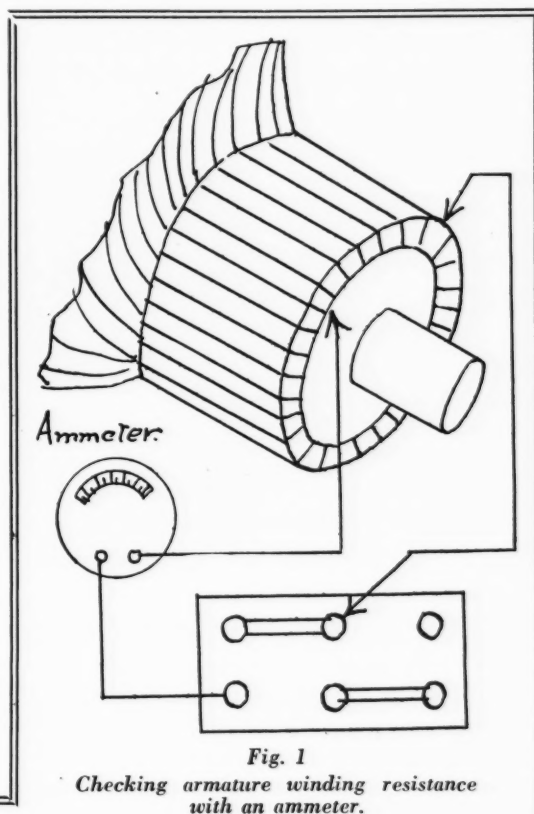


Fig. 1

Checking armature winding resistance with an ammeter.

the first place. That shows why it's so foolish for the fellow in the small shop to think he can rewind his own. Aside from the fact that he can make more money by patronizing some well established concern, he runs a chance of come back jobs due to his inexperience."

There is another cause of overheating that is hard to find because few electricians know the trick. It is heating due to the armature rubbing the pole piece. Of course, if bearings are badly worn, the armature may rub enough to burn up, drag the laminations out of line and cause general havoc. When the rubbing is slight, however, it can not be detected by just turning the armature by hand with no current flowing. With field current flowing, however, the rub will show up.

This is illustrated in this sketch (Fig 2) where we have a shaft very loose in a plain bearing. Ordinarily the shaft will rest at the lowest part of the bearing and we will assume that the armature just barely escapes rubbing the two lower poles. Now if we run current through the field windings we get a magnetic effect which will draw the armature over against one pole. In this illustration it is the lower left pole which being closest attracts the armature and makes it rub.

In this other sketch (Fig. 3) we have at the left a simple third brush machine and at the right a method of connecting it to test for rub. One connection at the battery will be left off after the circuits

(Continued on page 34)

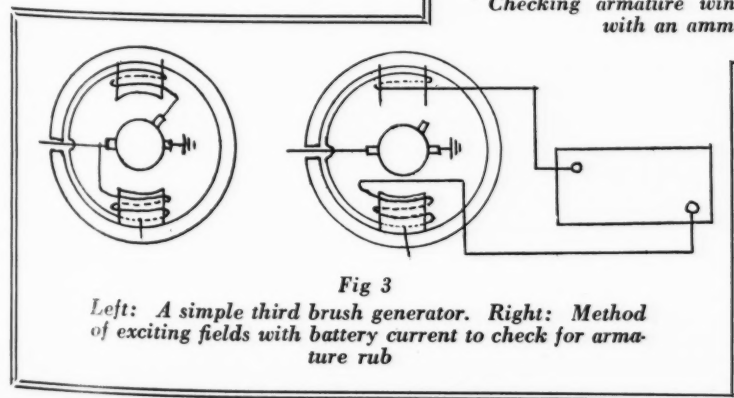


Fig 3

Left: A simple third brush generator. Right: Method of exciting fields with battery current to check for armature rub

Wheel Base	Touring	Sedan	Coupe	Roadster
100-110	8"	7"	6"	5"
110-120	7"	6"	5"	4"
120-130	6"	5"	4"	4"
130-140	5"	4"	3"	3"

Fig. 7

When lamps are adjusted with car unloaded, the crosses on the garage door should be lowered as shown in this table

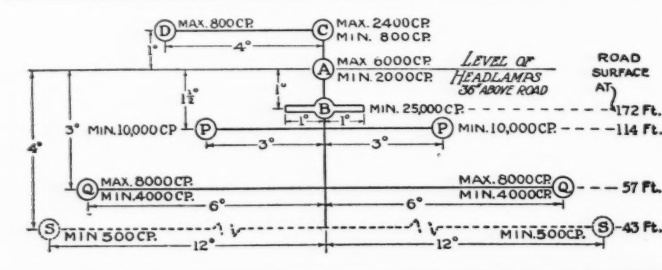


Fig. 1

Engineering specifications for correct lighting

THE head lamp on the modern automobile is one of the most important units. Some years ago head lamps were considered as accessories but today no manufacturer would think of trying to sell a passenger car without electric lights. It is also true that the head lamp is probably neglected more than any other part of the car except when a bulb actually burns out and it is necessary to have it replaced before the car can be used at night. When the simple nature of head light maintenance is pointed out and the advantage of good lights realized, we will find that night driving conditions are vastly improved.

The average car owner may consider that improving his head lamps is a benefit to the other fellow only, but this is far from being the case, for adequate illumination of the road, aside from safety from collision should prove sufficient compensation for the effort required.

The actual light available in automobile headlamps is a small quantity, so that it is necessary to use this available light to best advantage in order that the desired results may be obtained. Here we find it necessary to depend on the reflector which is designed to gather the rays of light which go from the light in all directions and send them ahead along the road. In this way a head light beam of thousands of candle power may be obtained from a lamp which gives but twenty-one.

However, a beam of such tremendous candlepower can be a veritable light barrage for passing motorists, not unlike the searchlights of war time whose blinding rays concealed troop movement from the enemy. That is glare. But this same beam, properly controlled so that it falls on the road, and properly distributed so that it spreads out far ahead, close by, and at the sides, becomes good illumination without dangerous glare. Headlight maintenance is accordingly needed, not only on the older types of equipment, but to some extent on the new two filament lamps.

From the two small headlamps, mounted only three feet above the road, a way must be found to direct a path of light over its entire surface for 200 feet or more ahead; a little light close by and to the sides to illuminate roadside and ditch and to assist in making sharp turns, and tens of thousands of candlepower just below the level of the headlamps to reach well ahead and reveal obstructions,

Headlamp

A Simple Process

Focusing and Adjusting Is Easily Done with Proper Equipment—Care of Reflectors Is Important

turns, crossroads, and dead-end streets. At the level of the headlamps and slightly higher there must be some light to reveal pedestrians and anything that overhangs the road before one is upon it. But here the intensity of the beam must be closely limited, unfortunately, to a small fraction of that needed just below the level of the headlamps if the approaching driver is not to be blinded in its dazzling glare—actually to much less than is necessary to reveal the road far ahead for fast driving.

Here is where the engineers, as is so often the case, have done the highly complex part of the job, leaving for you only the matter of keeping the headlights in adjustment. They have determined the best compromise that can be effected between the need for a high candlepower to reveal objects ahead, on the one hand, and, on the other,



Fig. 5

The garage door makes a convenient target when adjusting the lamps

the necessity for controlling the light above the lamp level so that while some glare remains, serious interference with vision is avoided. In Fig. 1 is a chart showing the necessary illumination at various points on the road, similar markings in the illustration of Fig. 2 bringing out the exact meaning of the chart.

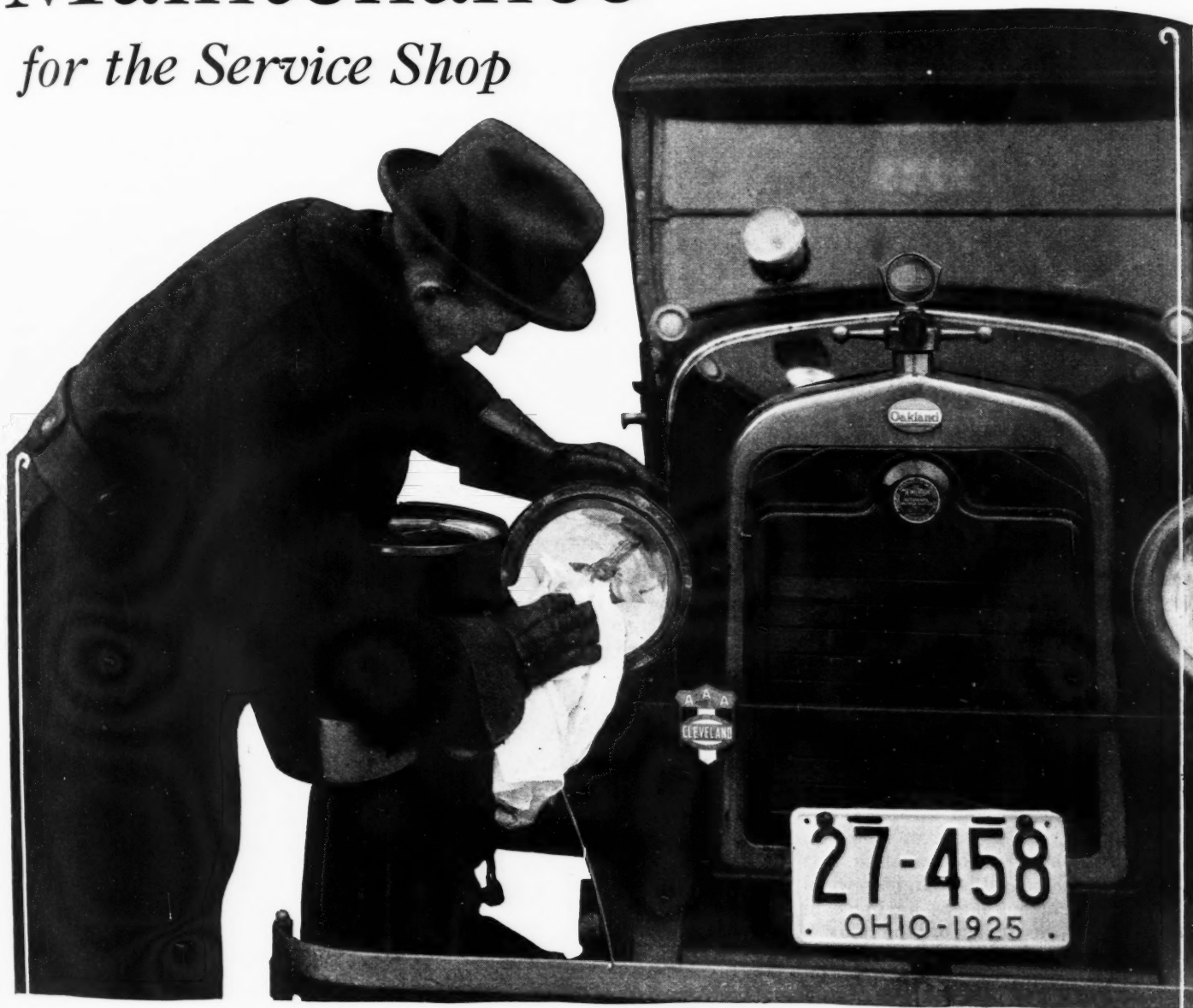
The attainment of the right distribution indicated in Fig. 1 and Fig. 2 requires not only that the bulbs be properly focused but that some additional means be used in connection with the conventional reflector unless the reflector itself be other than the plain parabolic type. The adjustment of the bulb to get the filament located at the focus when a plain reflector is used is a comparatively simple matter. Fig. 3 shows the results obtained with the bulb in various positions.

In the upper illustration of Fig. 3 the bulb is at the focus of the reflector so that the light rays go out in a narrow beam. In the center illustration of Fig. 3 the

Maintenance

for the Service Shop

By A. H. PACKER



Keeping the reflectors well polished pays dividends in safe night driving

bulb is a little ahead of the focus and the rays got out at a decided angle crossing each other, so that the beam instead of being narrow is wide spread, both in the up and down and in the horizontal direction. When the lamp is back of the focus you get the kind of beam shown in the lower illustration of Fig. 3 where again the rays spread out, this time without crossing, and we have a condition similar to what we had ahead of the focus.

None of the three beams shown in Fig. 3 are of a satisfactory type to answer the requirements of good headlighting. The upper illustration shows a beam which can be directed along the road and kept out of the eyes of the on-coming driver but the center and lower illustrations show a lighting distribution which will cause glare by sending too much light into the eyes of the other driver. None of them, however, give the desirable distribution shown in Fig. 1 and Fig. 2 which calls for maximum light on the road ahead with some light distributed at each side of the road.

The proper distribution of light is attained either by

using a special lens with a standard type reflector or else by using a reflector with specially designed contours or by a combination of the two. In any case there is always some one position of the lamp bulb which gives the best shape of beam and focusing should be done with the lamps in place.

One fundamental principle used frequently in the construction of lenses is the fact that a wedge or prism of glass will send light rays off at an angle.

Fig. 4 shows the right distribution obtained with two types of lens, each of which spreads the light out at the side and keeps it from rising too high. The lens at the left spreads the light out to cover the road, but the one at the right is a better device for it bends and spreads the rays of the beams by varying amounts in order to distribute the light in the best possible manner, in accordance with the specifications of Fig. 1.

For correct lighting it is essential that the standard 21 candlepower bulb used for this purpose be in good condition, and that the connections in the lighting circuit

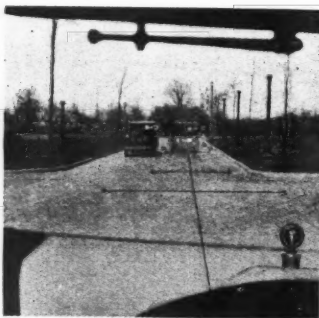


Fig. 2
Interpretation of the lighting
diagram of Fig. 1



Fig. 6
Most lamps have an external
adjusting screw for moving
the bulb back and forth

be good. If the filament in the headlamp bulb glows yellow, instead of white there is no use trying to get good road illumination until this condition is corrected. Dim lights may also be caused by discharged battery and low generator charging rate. On the other hand early lamp failure indicates a high voltage at the lamps which may be caused by poor contact in the battery circuit, by lack of water in the battery, or by an overcharged battery produced by excessive charging rate.

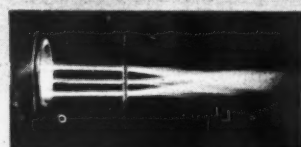
Well polished reflectors are also essential in securing good lighting, and reflectors which are dirty and tarnished may in most cases be put in good condition by polishing with a soft cloth or with cotton which has been dipped in powdered lamp black. If the gasket cord which is provided to make an air tight seal between the lens and the reflector is loose it should be fastened in place with glue. Cracked or broken glass should be replaced as it permits air to enter and tarnish the reflector surface.

Make sure that the socket holds the lamp-base firmly to keep the bulb from wobbling. If necessary, pinch the socket walls together slightly with pliers.

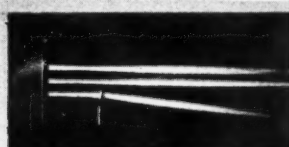
With two-filament lamps having a bright and dim filament, either the bulbs or the plug connectors may be wrong side up. Before replacing the doors, see that the lower 21 candlepower filament burns when the switch is in the "bright" position.

Fasten the headlamp doors in place with the drain hole at the bottom. A little grease on the inner surface of the door will make it easier to remove next time. If correctly installed the wording on the lens or reflector will read properly from the outside. It is very important that the flutes be vertical. If there is a tendency for the

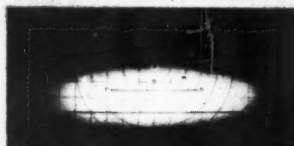
Fig. 4
Special lenses spread the light to illuminate the whole road



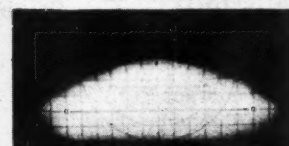
Spreading the Rays of Light
With Vertical Flutes



Bending a Ray of Light
With a Horizontal Prism



Cross Section of Beam With
Uniform Spreading Flutes



More Desirable Beam—Rays
From Different Sections Bent
and Spread in Varying Amounts

lens to rotate, a small square of adhesive tape between it and the door or reflector will keep the flutes vertical.

To focus the headlamps place the car on a level surface 25 feet from a light colored vertical surface as indicated in Fig. 5. The crosses marked on the doors in Fig. 5, are the same height as the center of headlamp and are the same distance apart.

Some means, which can be determined upon examination, is customarily provided for moving the bulb backward and forward in the reflector, usually a screw head projecting from the rear of the headlamps as shown in Fig. 6. Cover up one of the headlights. Now, move the bulb in the other back and forth and notice the changing pattern on the garage door. Our object is to get a light pattern as shallow as possible in the up-and-down direction with the top edge of the pattern sharply outlined. The brightest part of the pattern should be as near the top of the beam as possible because this is the part of the beam that lights the road far away. If the bulb is of the ordinary single filament type take it out and turn it over in the socket, and use it in the

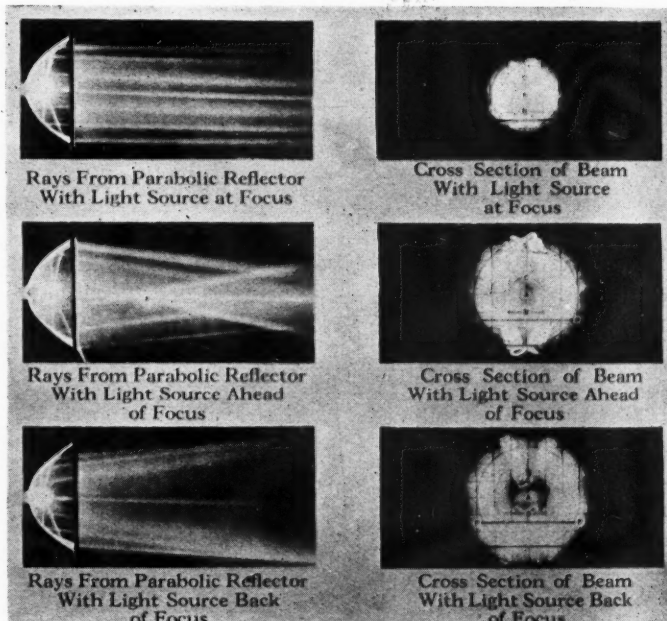


Fig. 3
Path of light rays from plain parabolic reflector

position which best fulfills the foregoing condition. Focus the other headlamp in the same way.

After the bulbs have been properly located so as to give light distribution, similar to that shown in Fig. 5, it may be found that the spot of light is too high or too low. This can be corrected by adjusting the headlamp up or down which in some cases requires bending the headlight bracket. Where adjustment is made with car fully loaded the position of the crosses should be as above indicated at the height of the headlamp center. However, if the car is not loaded the crosses should be lowered a certain amount which can be determined by referring to the table of Fig. 7.

Whenever a lamp is renewed and oftener if necessary, the reflector and lamp should be carefully cleaned and the bulbs re-focused.

(Illustrations and material for this article obtained through the courtesy of the National Lamp Works of General Electric Co.)

Capturing Tourist Business

Handsome Building of the California Garage and Service Corporation of Long Beach, Cal.



By Getting in Touch with Visiting Motorists Immediately Upon Their Arrival Service Establishment Builds Up Big Transient Patronage

THE problem of the garage owner in the tourist town is the establishment of business connections with those tourists who come to the town, stay two or three weeks and then are gone. It is usually a hit or miss proposition with the garage owners taking a chance that they will get their share of the trade.

The problem in Southern California is as good and illustration as could be found. Here the tourist from the East comes, looking for a permanent place, or possibly just enjoying the climate of Sunny California for a short time.

An increase in business was needed by the California Garage and Service Corporation of Long Beach, Cal., 30 or 40 miles from Los Angeles. Located at a point not quite on the regular trails frequented by the motorists coming into the city, they were not getting their share of the business. Various other garages, at more accessible corners, were gathering in the profits from the tourist, whose natural tendency is to give their work to the first garage they see.

It is imperative in such a situation that the tourist car owner be reached by other than ordinary advertising methods intended for permanent residents, such as newspaper advertisements.

The means adopted by this firm has been that of personal letters to every tourist coming into Long Beach. An experienced advertising man is given this particular job. It is his business to know the names of all the incoming and outgoing tourists. Upon arrival of a tourist in Long Beach, he immediately acquaints the motorist with the service rendered by the garage.

A typical sample of his letters written to a tourist who has just arrived in Long Beach is given below:

Mr. Dave Johnson,
670 E. Third St.,
Long Beach, Cal.

Dear Mr. Johnson:—

No doubt since your recent drive through to Long Beach from Phoenix, Arizona, your car may need

certain minor adjustments, a thorough oiling and greasing and perhaps a good cleaning and polishing.

This letter is written to you as a little friendly note in order that we may introduce ourselves and that we may both become better acquainted. Our garage is one of the finest in Southern California and we maintain every need for the motorist under one roof. We would greatly appreciate it if you would call on us from time to time and let us serve you.

In case you have not yet found a place to keep your car we would like to advise you that we have just inaugurated a new \$5 per month storage rate which is absolutely the lowest rate offered by any garage in the city.

Hoping that we may have the pleasure of meeting you in the near future, we remain,

Yours truly,

California Garage and Service Corporation.

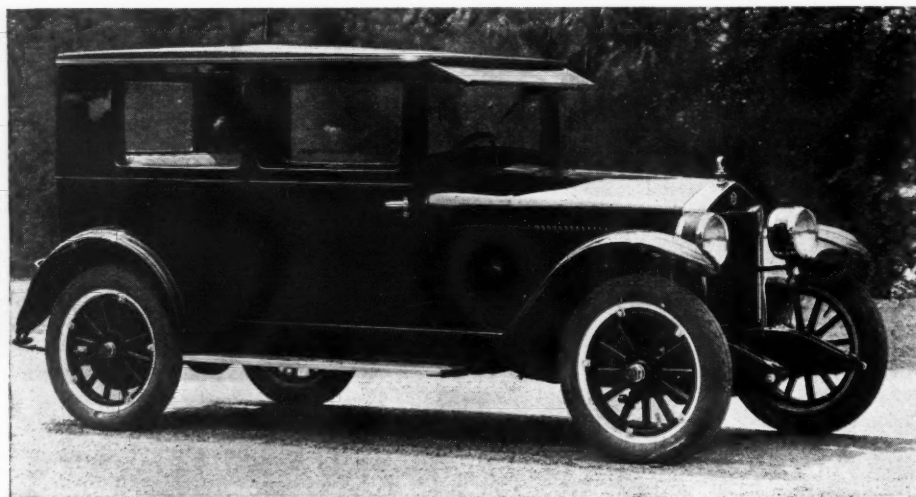
The keynote of the whole letter is in the first sentence, whereby the recipient is made aware that the writer really knows of the tourist's movements. It is never a form letter, all of them being personally written by the advertising manager.

Founded five years ago as a partnership, at that time known as Frye and Decoudres, the concern did a gross business of \$30,000 the first year of their venture. At the present time the successor of the partnership does a gross business of \$200,000 annually, showing an increase of 666 2/3 in five years time.

The increase in the business was noticeable with the adoption of the letter plan and since the idea has been supplemented, the corporation has grown with tremendous strides. Five billboards at strategically located points on the main arteries leading into the city have recently been installed.

Success of the letter to tourists plan has led to the adoption of a personal letter to every purchaser of a car from a Long Beach dealer.

Essex Now Made With New Type Steel Bodies



Three quarter front view of the New Essex Coach

ESSEX coaches are now coming through with a new all-steel, baked-enamel body, constructed by methods entirely new to the body building art.

No changes in the chassis are being made at this time, although changes have been made from time to time during the past year and other minor changes will be made later.

The price of the new model is \$795 F. O. B. Detroit, standard equipment, including automatic windshield cleaner, rear view mirror, built-in transmission lock, radiator shutter, Moto-Meter, and combination stop and tail light.

The new body has been made possible by the erection of a \$10,000,000 plant designed and built for the sole purpose of manufacturing the new body. Unlike all other body plants, there is not a framing buck or jig in the entire plant and in only two points on the entire body is spot-welding employed.

In place of the methods usually employed, the new Essex bodies are riveted and bolted together, the individual parts being formed and the bolt and rivet holes pierced on the press dies. With the exception of a few pieces to which the trim is fastened, the floor boards and a liner in the steel sill, there is no wood in the body. The result is a body of exceptional rigidity, and from a service standpoint any panel can be replaced in three hours.

The writer had occasion to put the car through its paces on some rough pieces of road around Detroit. A particularly rough stretch was selected, the two doors opened, a 200-pound man, perched on each of the open doors and the car driven

as rapidly as possible over the stretch. At the conclusion of several hundred yards of this, the men on the doors were ready to cry quits, but the doors were as tight and well-fitting as could be desired. The doors are hung on piano type hingers, and the job of hanging them takes a few seconds, the work merely consisting of driving a pin through the piano hinge. With one front wheel on a 6-in. curb the doors opened and closed freely.

In appearance the coaches have been beautified by the use of cambered rear quarter posts, giving a slightly narrowed top. The bodies are 2 in. lower, the reduction in height being due to the use of steel instead of wood sills. The upholstery is Granite weave striped for the seats and backs and Granite weave plain for the lining material. All new hardware is used, the door handle and lock are combined in one unit. The steering wheel rim is solid walnut mounted on cast aluminum spider, and the instrument board presents a neatly balanced layout of dials and switches. The windshield wiper switch is on the dash.

The new Essex body has been made possible only through the construction of the big plant devoted entirely to the purpose. A little over a year ago, May 4, 1925, the plant was laid out and a production of 100 bodies scheduled for July 1, 1926. A few weeks before this date, the schedule was increased by 50, and on July 2nd 150 finished bodies left the plant.

The plant has a normal capacity of 2,000 bodies per 9-hour day. It is a true progressive type of plant, the raw mate-

Special Ten-Million Dollar Plant and Innovations in Body Construction Facilitate Quantity Production

rial entering on the lowest floor where the presses are located and from that point moving along until the bodies leave the final assembly complete, ready to be upholstered, roofed, wired and dropped on the chassis at the main plant.

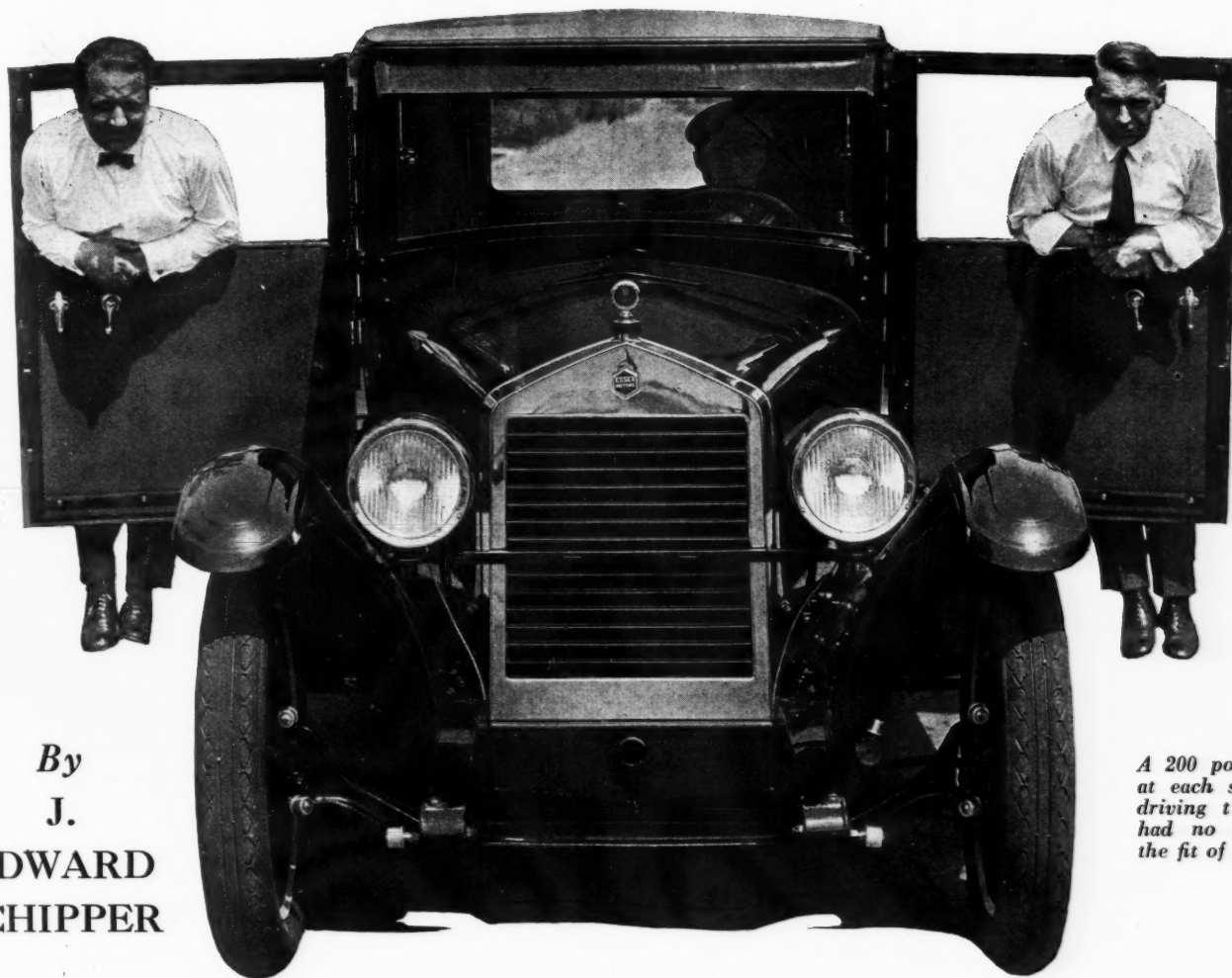
The plant has been laid out and is operated by pressed steel men. Until the body reaches the trimming stage, no body-builders under the ordinary usage of the term, touch the body. The parts after leaving the press department are conveyed to the enamel room, where they are dipped in the rubbing coat, baked, dipped in the finish coat, baked and then sent to the assembly or sub-assembly line, where they are needed.

The steel sills are fitted with roller casters at the start of assembly. These sills plus the casters form the truck upon which the body is carried during its process of assembly. Incidentally, these casters take one-thirtieth the space usually required for type of truck usually employed in moving bodies in process.

The steel sheets come from the mills treated with a vegetable oil preparation which is neutralized with the hot water, used in the bath through which the sheets pass before entering the enameling tanks. This acts as the rustproof both for the sheets in transit and for the metal surface under the enamel coat.

All of the pressed steel parts are formed with not only ease of assembly in view, but also from the standpoint of rigidity. For instance, a flange is thrown up on the body panels around the belt line. This takes the place of the usual 2-in. wood belt section, but with less weight and more strength. The all-steel sill is claimed to be 60 per cent more rigid than the wood sill it displaces.

The main operations along the first part of the assembly line are those of bolting and riveting the pieces together. The sub-assembly lines are adjacent to the main assembly and feed the parts to it, just as is common practice in motor or chassis assembly. There are six sub-



By
J.
**EDWARD
SCHIPPER**

*A 200 pound man
at each side in a
driving test that
had no effect on
the fit of the doors*

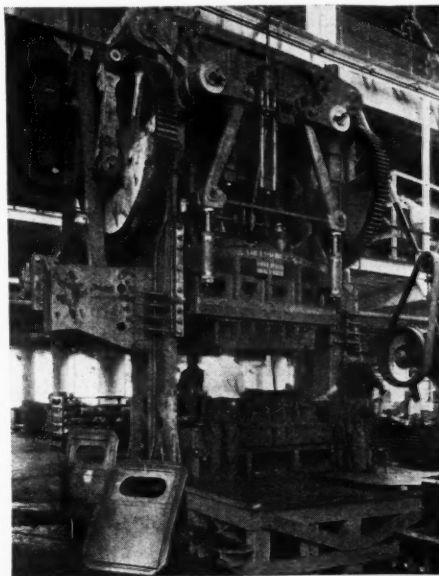
assemblies, the cowl and front piece, two rear quarters, two doors and the back assembly. No inspections are used along the assembly line until at the end. Here the bodies are checked by means of a roof template. This fits down over the body which is left open at the top, as the roof on top deck is part of the finished car assembly. When the roof template is put on, it checks the body at six points, this being the number of holes that are required to line up with the dowels on the template.

The door sub-assembly is unique in that the panel forms no part of the structural strength of the door. The rigidity is gained by the box sections formed by the presses in making the framing. There are some very ingenious examples of die work in this. In fact the entire plant would make a pressman's happy hunting ground, and would be worth several days' study just from that standpoint alone. The way some of the sheets are doubled back and out in Z, S and U sections, not to mention other shapes not comparable to any letters of the alphabet, is something that defies description. Even the rubber and composition weather stripping is rolled or pressed into the steel weather pieces by machines of entirely new design.

In the door sub-assembly, after all the parts have been put together, the entire door is put in a 130-ton hydraulic press and set to shape. It then gets a final

touch up, the dings are taken out and it joins the main body assembly line. Because of the use of the enamel process, little or no touching up can be done with the grinding wheel or file, as these would show through the enamel. The result is that extra care has to be taken with the highly finished plates as they leave the mill, and special bundle ship-

Mammoth press which makes the Essex door panels



ping methods have been devised. Instead of handling the sheets one by one in the usual way, they are bundled at the mill in angle iron containers and delivered in the bundle at the presses, resulting in less scratches, less handling, less freight car damage and much less cost of shipping. The sill stock is 14-gauge, the panel stock 20-gauge.

The windshield is a sort of sub-assembly. There are two interesting points to this department: One, the way the glass is cut and shaped; two, the inexpensive method of forming the hinge. Even the glass cutting is progressive. It passes in frames over a series of grinding wheels. There are five wheels in the series, the first four being carborundum grinding wheels and the fifth a rubber and canvas composition polishing wheel. The glass is all genuine plate glass.

High-priced glass cutters have been absolutely eliminated in this department. The waste has been cut to almost nothing, the glass is accurately and uniformly cut and polished and common labor can handle it. The glass is pressed into the windshield frame between two cork sheets by means of an ingenious toggle press which supplants the mallet usually employed.

The windshield hinge is formed by rolling over the edge of the flange on the top of the windshield frame, and similarly rolling over the flange on the wind-

(Continued on page 32)

July 22, 1926

"Custom Built" Models



Front seat arrangement of Studebaker "President," a Big Six Custom Sedan

BODY design and appointments associated with custom-built cars are embodied in the new line of moderately priced closed cars now being supplied to their dealers by the Studebaker Corp. of America to supplement the present models. Low-hung steel bodies incorporating rounded roof and panels, two tone lacquer finish, double belt effect together with special interior fitments in addition to certain mechanical refinements including mechanical four wheel brakes, disk wheels and twin-beam headlights, are the features of the "custom-designed" line as the new sedans are known.

Four different body models comprising a Standard Six custom sedan, a custom brougham on the 120 in. Big Six chassis, and a seven passenger custom sedan and another seven passenger custom sedan named the President, both mounted on the 127 in. Big Six chassis, complete the line with the prices listing at \$1385, \$1985, \$2245 and \$2385 respectively. When compared with their companion cars of the present series, the new cars with their steel bodies are from 200 to 250 lb. lighter, while the prices are approximately \$100 higher. No mechanical changes have been made in either the Standard or Big Six chassis carrying the

*Four Different Body Styles Listing
From \$1385 to \$2385 Comprise
South Bend Corporation's
Supplementary
Offering*

for the top and bottom sills, roof, rear window form and certain small pieces for reinforcement. The cowl and dash are made up of several stampings and butt-welded with the box section windshield posts extending to the sills and welded to the cowl, this forming an integral unit. The rear section minus the exterior covering is also formed as a unit, the wheel housings, steel pillars and formers being welded and riveted together. Both the cowl, the steel center door pillars and the rear section framework are bolted and screwed to the bottom wooden sills with the upper parts attached in a similar manner to the wooden sills formed integral with the roof. The entire metal covering for the rear sections welded into a single unit, is placed bodily over the frame work and is secured at the wheel housings and framework through butt-welding, bolts and

"custom-designed" bodies other than those necessary for the mechanical application of the four wheel brake system and certain minor changes in the spring pads to lower the bodies. The bodies forming the Standard Six and Big Six lines, are retained without alteration.

Reduction of Overall Height

Employment of a new type of steel body construction has enabled a lowering in floor height above the road by 2 in. and this in conjunction with alterations in the spring pad design has allowed a total reduction of 3 to 5½ in. in the overall height of the cars. Improved vision, wider doors and greater interior space result directly from the new body construction which also allows the adoption of a new type of "draft-proof" windshield providing two distinct systems of ventilation. Budd-Michelin steel disk wheels are employed on both larger chassis, the 127 in. model being provided with 32 by 6.75 in. tires and Watson Stabalators with the 120 in. chassis fitted with 32 by 6.00 in. tires and Gabriel snubbers, while the Standard Six model uses 31 by 5.25 in. tires with provision made for the attachment of shock absorbers.

Bodies are constructed of steel except



Showing rear seating arrangement of Studebaker's Standard Six, five-passenger Custom Sedan

rivets, with the upper portions of the covering nailed to the roof sills. Doors formed of steel throughout close against the center pillar and the two hinges of each door are protected by two different types of concealed door checks. From the accompanying photographs it will be seen that the new bodies have gracefully curved roofs, rounded rear sections and employ the double belt effect with the lower strip of moulding extending

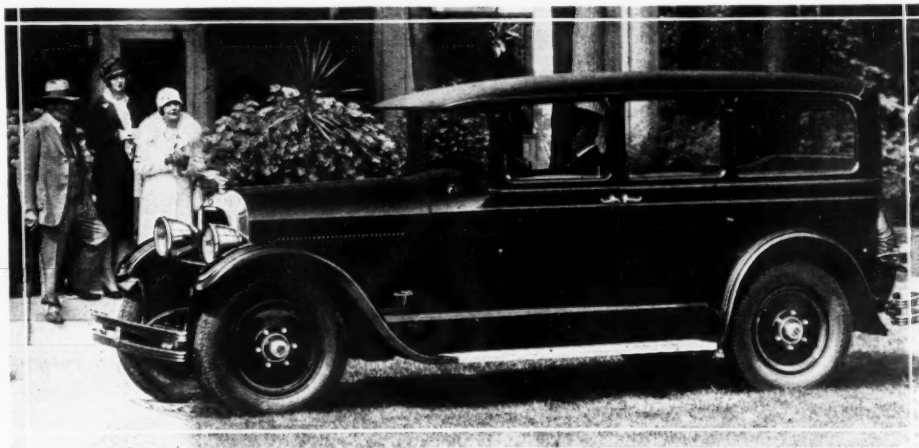
Added by Studebaker

By L. S. GILLETTE

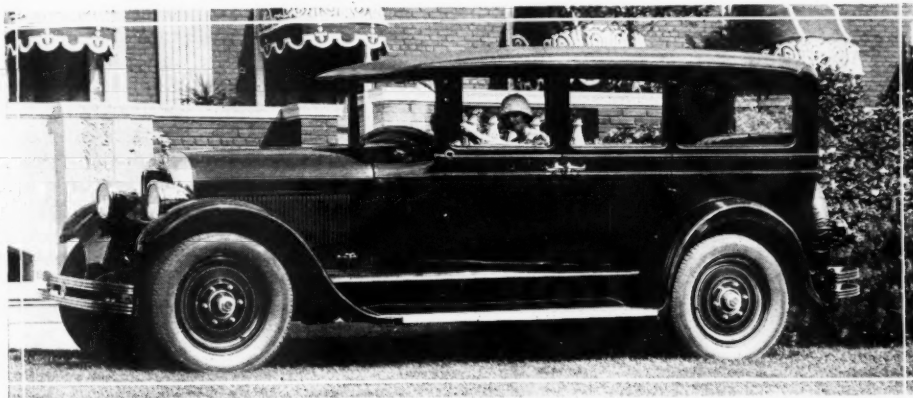
from the radiator entirely around the bodies. Flanges on the fenders have also been increased in depth to give a more massive appearance in reducing the space seen between the tires and fenders.

Ventilation Provision

Ventilation without draft is achieved through a one-piece windshield swinging from the top which directs air toward the top of the car or down under the cowl as desired. The amount of air admitted to the car in either position is controlled by a single handle mounted in the center of the paneling above the instrument board. Through a screw and



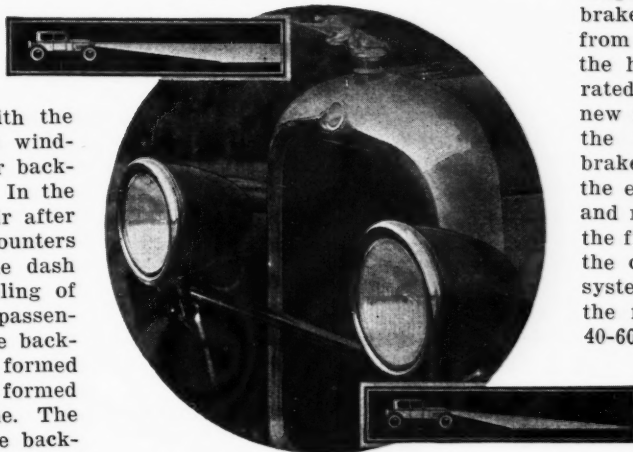
Studebaker's "President," a Big Six seven passenger Custom Sedan listing at \$2385



Studebaker Big Six, seven passenger, Custom Sedan listing at \$2245

toggle arrangement connected with the bottom center of the frame, the windshield is swung either forward or backward as the handle is operated. In the forward position, the incoming air after passing under the windshield encounters a baffle formed integral with the dash which deflects the air to the ceiling of the car above the heads of the passengers. With the windshield in the backward position, it covers the baffle formed in the dash and exposes a channel formed in the base of the windshield frame. The air striking the windshield in the backward slanting position is deflected through the opening in the windshield frame and there enters the interior of the car from under the cowl. When the windshield is in the forward position a small quantity of the incoming air enters also through the window frame channel although in the backward position air can enter only through this point. Midway between the two positions the windshield forms an air and water tight barrier.

Front views of the "custom-designed" line show a marked improvement through the adoption of bullet-shaped headlights



Bullet-shaped, two-beam headlights and silvered "Atlanta" radiator emblem enhance impressiveness of front view of Studebaker's "Custom Designed" line

and an attractive silvered figure of Atalanta carried as a radiator emblem. The figure of Atalanta, exponent of fleetness and love of the chase in Greek mythology is adopted to express the spirit of the custom car series. Two filament bulbs shining through Tilt-Ray lenses are employed in the headlights, the operation

being controlled from a switch in the center of the steering wheel in the manner employed on the other Studebaker models. Headlights on the two seven passenger cars are nickel-plated entirely.

Plan of Brake Operation

Four wheel brakes standard equipment on the "custom-designed series are of the same design as those offered optionally at extra cost on the current Studebaker models except they are mechanically operated throughout. In seeking simpler operation and easier service, the brakes are operated directly by rods from the brake pedal instead of through the hydraulic-servo mechanism incorporated in the transmission unit. With the new system, changes have been made in the brake rods layout although the brakes themselves remain unaltered and the equalizing features between both front and rear sets of brakes as well as between the front and rear brakes on each side of the cars are retained. As in the other system braking pressures are exerted on the front and rear wheel brakes in a 40-60 ratio. From the brake pedal a long rod runs back directly to an equalizing lever connecting with the independently operated cross shaft. Floating equalizers at the outer ends of the independent

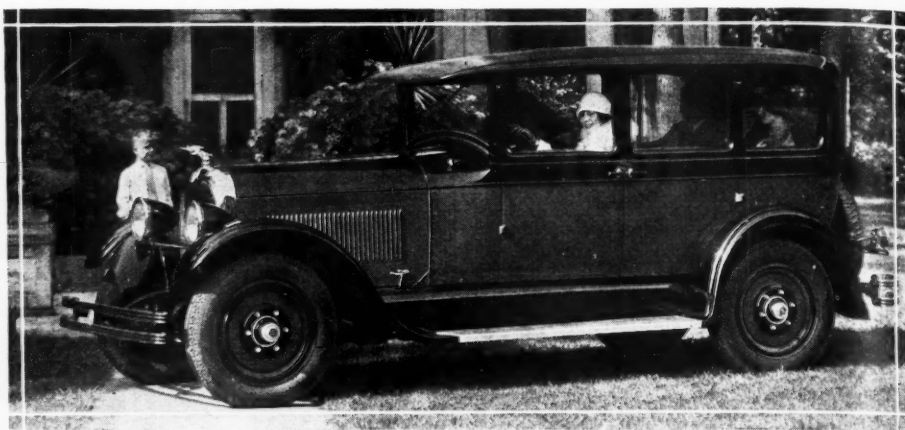
cross shaft connect through rods and lever arms to the front and rear wheel brake pull rods. In addition to adjustments provided in the rear brake pull rods, similar take-up devices are employed now on the front brake pull rods. Front wheel brakes are of the two shoe internal expanding type with those on the rear of the external contracting band type, the dimensions of the drums being front, 16 by 2½ in. on the Big Six Chassis and 14½ by 2¼ in. for the Standard Six. Rear brake drums are, Big Six 16½ by 2½ in. and Standard Six 14½ by 2¼ in.

The use of convex disk wheels makes it possible to locate the steering pivots in an almost perpendicular plane directly above the vertical center line of the front wheels giving much easier steering and better freedom from the transmission of road shocks.

Complete harmony in color of both interior and exterior finishes are the outstanding features of the bodies. Instrument board in two tone lacquer paneling, and the molding also in dull satin finish lacquer harmonize in color with the upholstery, carpets and window curtains. With the adoption of the Atalanta radiator emblem, a remote type of engine heat indicator is installed in the instrument group which is now relieved by a black background giving a softer lighting effect with the indirect system of illumination. The control for the automatic windshield cleaner also is mounted on the instrument board with the piping leading to the cleaner unit concealed inside the corner pillar. All hardware is of Butler satin finish with the same design effect carried out in all pieces. When the right rear door is opened, the dome light is switched on automatically, a separate switch for extinguishing the light being provided on the door pillar. Another innovation is the employment of only one key to unlatch all locks, the key for operating the coincidental steering lock also operating the door and spare tire lock. All seats are deep and wide with form fitting upholstery and special broadlace trim is employed on all cars. Both front and rear seat cushions in the Big Six Brougham and seven passenger sedan and the front seats of the seven passenger President sedan are equipped with Keys cushions in which the conventional springs are encased in a nearly air-tight envelope and provided with a check valve. This valve lets the air out suddenly as pressure is applied on the cushions but it allows the air to return slowly giving greater comfort through reducing rebound. The rear seats in the President also embodying the Keys device is supplemented by Marshall springs set above the air-tight envelope.

Colors, upholstery, and accessories on the four custom cars follow:

Standard Sedan: Duo-tone Studebaker



Studebaker Big Six, five passenger Custom Brougham listing at \$1985



Close-up of silvered "Atalanta" radiator emblem featuring Studebaker's "Custom Designed" models

blue and pewamo blue with ivory striping, mohair upholstery and rear window silk draw curtains.

Big Six 120 in. Brougham: Duo-tone Kinick green and Tuchi gray relieved by a black mounding with apple green striping. Toggle grips of silk, silk curtains and mohair upholstery.

Big Six 127 in. Sedan: Finished in Croation green with a black belt having ivory striping. Upholstery is in mohair and toggle grips are provided.

Big Six 127 in. President: Completely finished in lustrous black relieved with

a belt of thistle green with yellow striping. Upholstery is in gray broadcloth and Bedford cord. In addition to toggle grips, a smoking set and vanity case in gray leather are provided.

All four cars are equipped with front double bar bumpers and rear bumperettes, automatic windshield cleaners, rear view mirrors, dash gasoline gage, dash heat indicator, dome lights, cowl lights, combination tail and stop light, while both seven passenger models are provided with an emergency lamp on extension cord. A clock and special dash light are provided also on the President model and seven passenger sedan. All disk wheels are lacquered to harmonize with the bodies.

Auburn Sets New Mark for Long Wheelbase

AUBURN Automobile Company is in production on a new seven-passenger sedan, and these cars are being delivered to dealers.

In the design and construction of this car every effort was made to provide for the comfort of a full quota of seven-passengers and in making this provision Auburn used a chassis wheelbase of 146¼ inches, which is longer than that of any other passenger car now manufactured in America.

The same general exterior plan found in other Auburn 8-88 models was followed in the manufacture of this car. An unusual lowness of design has been worked out. The body is finished with attractive two-tone blue lacquer.

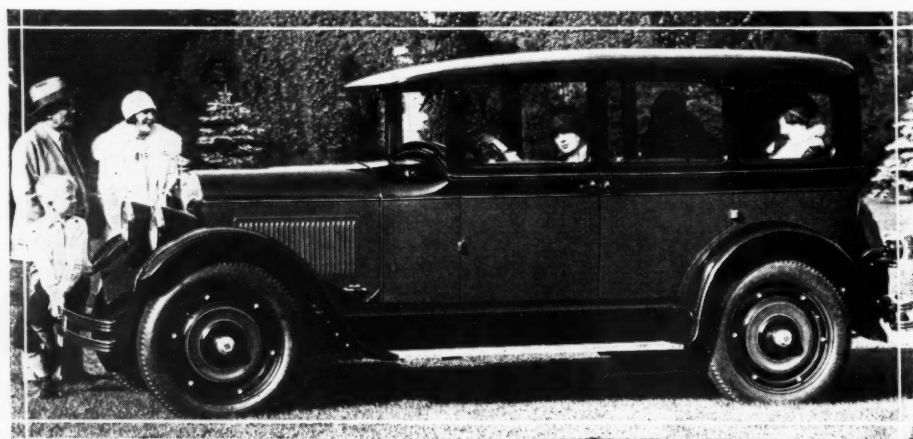
Cushions are equipped with Marshall type double deck springs, heavily padded to provide the utmost comfort and upholstery is all-wool broadcloth of a striped pattern.

Special attention has been given to the auxiliary seats to make them equally as comfortable as the other seats in the car.

Interior fittings and equipment are of highest quality, garnish rails and paneling being of polished walnut finish. The instrument board is walnut finish with decorative stripe. All instruments are grouped in one oval panel and include a heat indicator and a gasoline gage.

Automatic windshield wiper and rear

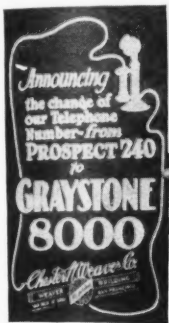
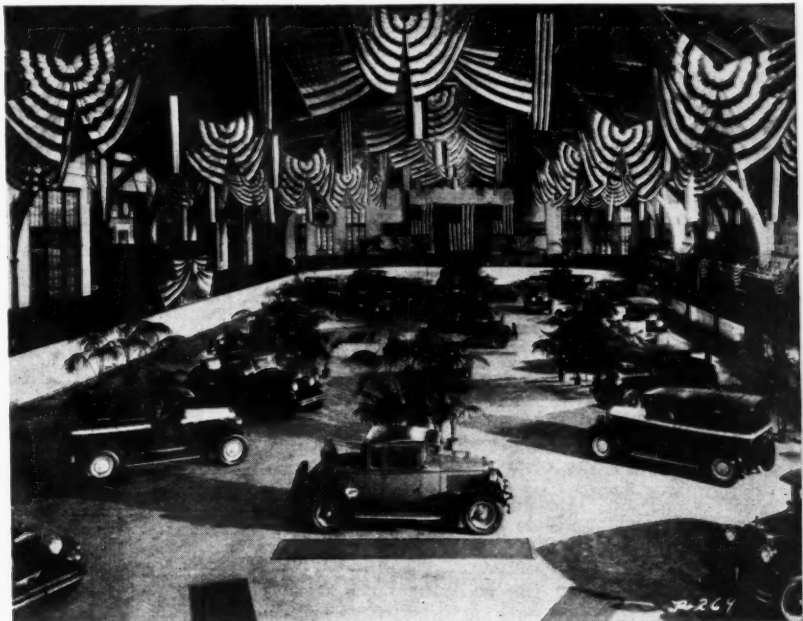
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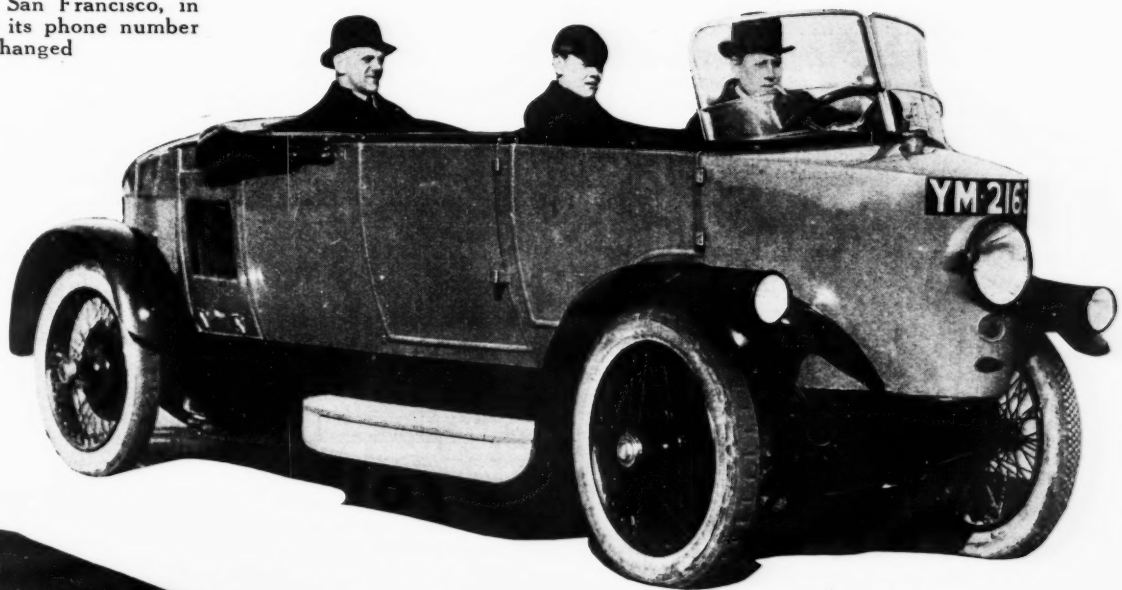
Studebaker Standard Six Custom Sedan, five passenger, listing at \$1385

Say This Is "Largest" Show Room

THE WORLD'S BIGGEST automobile show room! That is saying something. Nevertheless that is what the Cleveland Peerless factory branch says about its summertime salesroom being operated at the Elysium skating rink in Cleveland. The floor area measures 250 feet by 80. Palms, flags and other decorations help display 28 different body models



THIS PICTURE of the company's own operator holding up the sign you see was used in ads by the Chester N. Weaver Co., Studebaker dealers in San Francisco, in letting the town know its phone number had been changed



HERE'S A NEW TYPE German "Rumpler" with engine located in rear of car.



WHY USE A SWITCH ENGINE for "moving cars?" Out in California a gravel company does it this way

MORE NEW ACCESSORY DEVICES

Moto-Gard Radiator Shutter

A NEW manually operated radiator shutter with a gradual range of controls to meet varying weather conditions is being placed on the market by the Brewer-Titchener Corporation of Cortland, N. Y. The device is built in a substantial manner so as to give long life and eliminate likelihood of rattle developing. It is known by the designation Moto-Gard. An unusual feature of the device is a construction by means of which the six lower leaves can be closed and the upper section left open when desired. This protects the engine at the point where freezing would otherwise start. When weather conditions are more severe or when the engine needs to be warmed up quickly, the entire shutter can be closed. In warm weather the operator may drive with all leaves open. Control is by means of a thumb screw with indicator located on the instrument board.

The operating cable mechanism is concealed within the shutter, running through a bushing in the radiator core which safeguards the core against any danger of being chafed by the cable. There is also a turnbuckle on the cable for taking up any slack which may develop. The frame is a one-piece stamping and sets snugly into the shell. The leaves open inside the shutter and do not extend past the frame edge. Spring tension strips run over the ends of the leaves to eliminate possibility of rattling. Leaves and operating mechanism are installed as a separate unit to facilitate easy replacement of parts in case of accident. The unit can be removed from the outer frame by unloosening three bolts in each side after which damaged leaves can be replaced in approximately 10 min. Black enamel finish is used with the exception of the name plate which is nickel plated. Moto-Gard is made for all makes of cars, the list price range being \$9.50, \$12.50 and \$15.50.

Vesta Radio "A" Unit

A NEW radio unit comprising a storage battery and trickle charger in one compact glass container is being placed

on the market by the Vesta Battery Corp., 2100 Indiana Ave., Chicago. This unit replaces the large storage battery and separate charging unit normally required with the average radio set. With this device in use the radio owner always has a fully charged "A" battery which requires no thought or attention except for the addition of distilled water at intervals of approximately two months.

The use of the glass container makes it possible to readily see the level of the acid in the battery cells and the level of the solution in the trickle charger. A built in hydrometer which utilizes three colored balls makes it possible to check up on the condition of battery charge without drawing any liquid out of the battery or using a hydrometer of the ordinary type. It is said that with a trickle charger there is no danger of overcharging or overheating. The current flow is regulated to compensate for the current required in normal usage. The list price of the complete Vesta Radio "A" unit is \$25.00.

Tiffany Display Containers

TIFFANY MFG. COMPANY, 42 Spring St., Newark, N. J., is packing timers in very attractive display containers that are said to materially enhance merchandising appeal. Full information relating to the timers and containers may be obtained by writing to the manufacturers at the above given address.

"Snell Super Heater"

INSTANT heat producing and ventilating qualities are outstanding features claimed for the Snell Super Heater, a new heating device placed on the market by Tripp-Secord & Co., Detroit. Employing 282 square inches of heating surface, it is claimed that this new heater will produce heat in exceptional volume even in short distance driving.

As illustrated in the sectional view, fresh air is forced through the inlet funnel placed closely behind the fan. Passing through the tightly sealed, flexible, metallic hose, the air, entirely protected from all motor odors and gases, enters the heating compartment. The heating unit, consisting of a six walled chamber, divides the hot exhaust gases so that they surround the air chamber and form an unusually large protected heating area where the air is instantly heated as it passes on into the car interior. The large heating unit also offers greater space for expanding gases and makes for greater motor efficiency.

The Snell Super Heater register is designed to throw the heat along the floor of the car and in the direction required. A convenient shut-off valve is located in the register and can be adjusted to regulate the volume of heat desired.

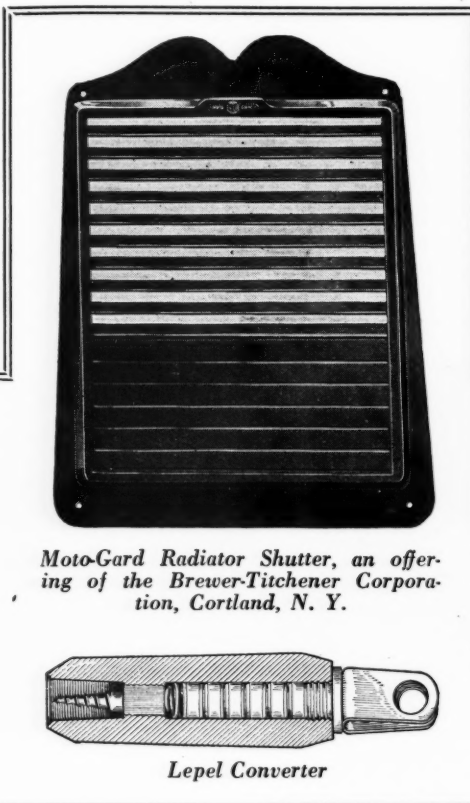
Made in only one model and three sizes to fit 95 per cent of all makes of cars, exclusive of Ford, the Snell Super Heater lists at \$25.

Lepel Converter

CONSISTING of a Bakelite shell shaped like an elongated terminal, containing a series of aluminum discs interspersed with thin mica washers, the Lepel converter, manufactured by the Lepel Ignition Corp., 117 West 63rd St., New York, is claimed to fire any plug, regardless of its condition. The discs and washers are compressed into permanent position by a coiled spring at one end of the converter and the device is connected in series with the spark plug.



Vesta Radio "A" Unit



Moto-Gard Radiator Shutter, an offering of the Brewer-Titchener Corporation, Cortland, N. Y.

Lepel Converter



Snell Super Heater

Planning Your New Building

City Storage Garage with Filling Station and Stores On the Ground Floor

By Tom Wilder

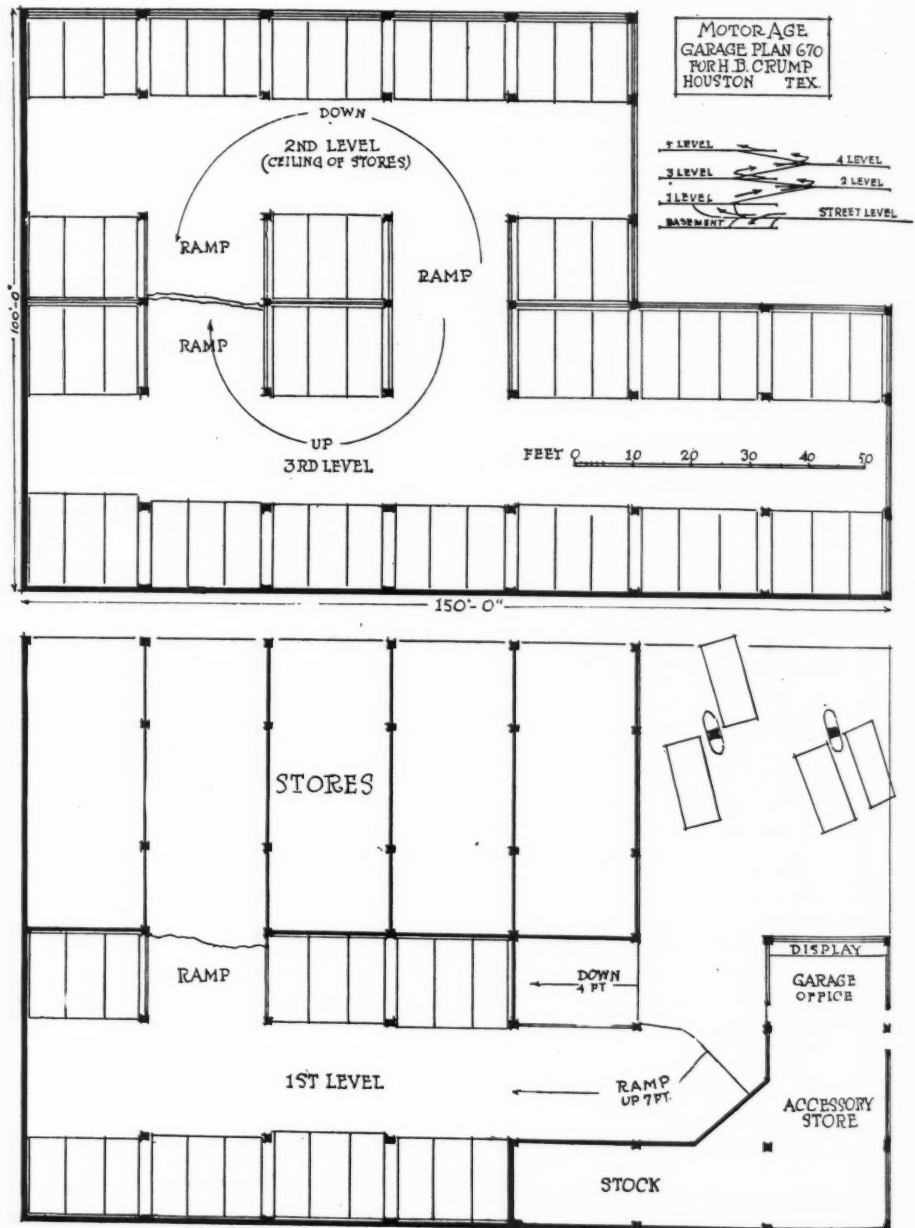
Q.—I am going to build an automobile hotel on a corner lot 100 by 150 ft. This building will have five twenty feet by fifty feet stores on the 150 ft. side leaving me 50 ft. on the corner. After this space is deducted I will have ten thousand square feet of ground floor and want three stories above this, making a total of fifty-five thousand square feet. In this building we want three ten-gallon visible gas pumps, also one No. 101B Curtis Air Mist washing machine, a brake service station and an office and display. Below I am giving you an outline of our ground floor. —H. B. Crump, 4110 Woodleigh Ave., Houston, Tex.

We are recommending a garage system which is being used almost exclusively for large downtown garage buildings. The system is patented but where it can be used to advantage there is so much saving in space over the ordinary elevator or long ramp system that the royalties are of no consequence in comparison with profits made possible by its use.

We have added one foot to the width of the stores from center to center in order that the columns may be contained in the partitions and still be spaced so that cars may be stored between them advantageously. If the columns were only 20 ft. apart on centers you would have to use very narrow columns or the cars would be so close together that damaged fenders would be frequent, even with the addition of the 6 ft. to the length of the storage section there is plenty of room for your filling station in this direction. The depth might be a little greater although we think it would work out very well.

Entering the garage cars may go to the right immediately entering a short incline down to a basement floor. Going straight ahead they enter the ramp up to the first level which would ordinarily be about 7 ft. above the street level. From here they will pass by a short ramp to the second level which is above the stores and from the second level continue in a circular direction through to the top of the building. The third, fourth and fifth levels being spaced about five to five and one-half feet above one another and reached by 30 ft. ramps which would have approximately 17 per cent grade. It will be seen that the floors in the tier above the stores will be staggered half way between the floors in the back section. This will give space for a mezzanine floor in the office and accessory store section which may be used for storage of accessories or waiting room for customers or both.

We have not made a layout for the mezzanine and accessory store section inasmuch as it is a detail which your architect can work out after getting your



We have shown only a ground floor plan with a typical upper story plan; all the other floors being similar

ideas.

The heating plant will have to be in a special basement under the accessory store and office, excavated lower than the storage basement or it could be under the stores.

The wash racks and other service equipment may be on any of the upper floors, preferably to the basement floor inasmuch as they will be lighter and therefore better service can be given.

The ramp from the first to second level will cut off a diagonal section of the ceiling at the back end of one of the stores 15 ft. deep but this will not in any way affect the store. In this sort of building the roof may be used for storage as well as the lower floors simply by extending the ramp and additional floors may be added at any time providing your foundations are laid for them in the beginning.

Answers to Readers' Questions

Camshaft Knock Located Adjusting Valves

Q.—We have a K-49, 1919 Buick touring car which has a knock in the engine. We have used a compression pump but cannot make it produce a knock on this test. When we adjust the push rod on the No. 6 intake valve so that the valve is not operated the noise is gone and when we adjust the No. 5 intake push rod so that the valve is not operated, we find that the noise increases. We have tightened connecting rods, refit wrist pins and tightened main bearings and installed new cages in springs on No. 6 cylinder. There is a little bit of up and down play in the camshaft, but we do not think there is enough to cause a knock. The knock is similar to loose piston pins but more sharp and more like two pieces of steel being hit together.—D. C. Stoller, Stoller's Garage, Paulding, Ohio.

We feel you have answered your own question. By changing the pressure which the valves exert on the camshaft you have eliminated and again increased the knock. This seems to us conclusive evidence that you need new camshaft bearings. This is also indicated by the fact that the compression pump does not show any signs of reproducing the noise. This would be true with the knock due to camshaft, valves or push rods. You might experiment some more with some of the other valves, possibly tightening the adjustment so that there is no play, doing this on one valve at a time. We are practically certain however, that the trouble is due to either camshaft bearings or possibly a loose timing gear.

SAYS MOUNTAIN KILLS SPARK

Q.—Referring to the query of M. H. Hawbaker of Mt. Morris, Ill., wish to advise that there is a mountain that interferes with the operation of an engine. On the road from Richmond to Staunton, Va., near Afton there is such a mountain. Before going over the mountain on the way west there is a long easy grade, up which a car could ordinarily go in high, but it cannot be done. A garageman down there told me he has tried, with most all makes of cars and positively had to go into second with all of them. After a certain point is reached the engine will pick up and the car can be put back into high gear. Evidently this is a case of induction. Probably Lode stone near the surface has a demagnetizing effect on the coils. Perhaps some of the readers in that locality can give some more information on this.—W. W. Gaskill, Roebbling, N. J.

We are inclined to have the characteristics of Thomas and doubt the explanation. A long slope which appears to be an easy grade is some times deceptive. If the angle of this slope in degrees has never been checked we are inclined to believe that it is steeper than it seems to be. If there really is any magnetic substance which interferes with the ignition it could easily be determined by stopping the car at the side of the road,

lifting the hood, removing a wire from a plug and holding it $\frac{3}{8}$ in. from the engine. If there really is interference it should show up as a weak spark or one which will not jump the required distance. If the spark is O. K. then it is merely a case of the grade being steeper than it appears.

PARTS FOR OWEN MAGNETIC

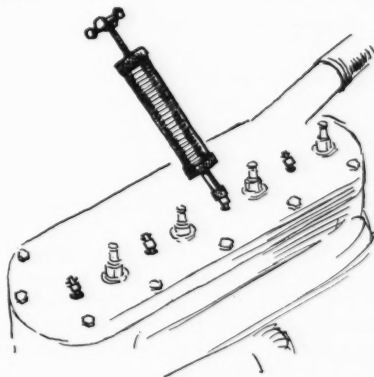
We note in June 10th issue of MOTOR AGE an inquiry concerning parts book covering Owen magnetic car. We believe that it will be possible for Kyle & Co., to secure the material in question from General Electric Co., Schenectady, N. Y. As we also are the proud possessors of the same car we feel we may be of some service to them in their quest for information.—W. A. Erath Co., 1807 Stone St., Falls City, Nebr.

SHOP KINKS IDEAS

That have been Found Useful

To Cushion Piston Slap While Running

When aluminum pistons are slightly loose they will slap intermittently and sound much the same as valve tappets. To test for this trouble when it is noticeable, it is helpful to have the priming cups removed and pressure lubrication fittings installed in their place. A pressure grease gun is used filled with 600-W. In this way 600-W can be forced into the cylinder while the engine is running and if this causes the noise to suddenly disappear it is certain that the trouble was due to piston slap.—Frank Kemper, 1009 N. Oak St., Grand Island, Nebr.



Readers of MOTOR AGE are invited to submit ideas that they have found useful in doing some particular service job in the shop in a better or quicker way. For each one published \$2.00 will be paid. Whenever possible the idea should be accompanied by a sketch or diagram from which a drawing can be made.

Locating Various Knocks In Engines

Q.—I do Oldsmobile service work and would like to know where I could get information on detecting the different kinds of knocks in an engine such as wrist pin, connecting rod, main bearing and timing gear, also at what speed these knocks show up.—W. E. Smith, Box 2, Snyder, Tex.

A four page article describing methods of locating engine knocks was published on pages 17, 18, 19 and 20 of the May 22, 1924, issue of MOTOR AGE and readers who are wise enough to keep back issues of MOTOR AGE can refer to this article.

Main bearings are always loudest under a load or pull. In tone they are what might be classed as a dull pound or thud. When a main bearing is unusually loose it will be manifested not only by a decided dull knock but also by vibration of the engine when it is accelerated. Shorting out the cylinders adjacent to the defective bearing will usually enable the tester to locate it.

Loose connecting rod bearings are generally loudest at an engine speed corresponding to 25 miles per hour, but may occur at about 20 and usually not over 35. Loose rods are very pronounced when easing off after accelerating and when coasting. In tone they are a light pound and sometimes a clatter. If completely burned out it will be heard at all speeds and under all conditions, even when cranking. Loose lower rod bearings are best located by shorting out. On most engines the shorting out process will produce two knocks in the rod bearing but both will be of considerably less intensity than the original noise. Piston slap is sometimes mistaken for carbon knock. It will show up however, after carbon has been removed from the engine.

Piston slap can be located by opening the pet cock and shorting out the spark plug in the same cylinder. Another method is to pour about a tablespoonful of 600-W oil into the spark plug hole in the cylinder where trouble is suspected. This fills up the clearance between piston and cylinder wall and stops the slap for a few minutes.

Timing gears usually make the most noise at idling speed. The noise may disappear above 15 miles per hour and come back strong at 25 miles an hour.

Loose piston pins are loud when idling, but may appear just as noisy at 20 to 30 miles per hour. Unlike loose rod bearings the piston pin will not become loudest when decelerating and usually will be less audible with retarded spark.

There are many other causes of engine knocks, which are given on a list which is sent to MOTOR AGE readers on request.

Clearing Up Electrical Troubles

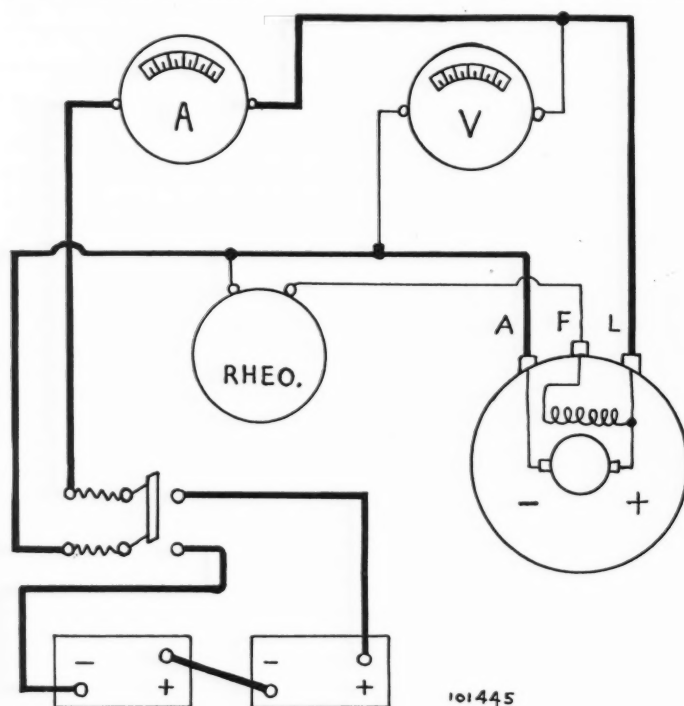
Wiring Diagram Supplied to Order

Q.—I am enclosing a diagram showing, ammeter, voltmeter, rheostat, switch and a generator that I have. I wish you would complete the diagram drawing in the necessary wires so that I may connect it up and charge storage batteries with it.—W. W. Stewart, Elgin, Mo.

We have drawn in the necessary wires

Edited By A. H. Packer

tory you would set the generator voltage at something over 24 volts. Then you can throw the switch and turn the rheostat so as to raise the voltage a little more. You can then watch the ammeter and set the rheostat to give the proper charging current. Instead of the hand operated switch it would be safer to



A battery charging outfit made from an old generator

in accordance with your request. At the terminal marked L on your generator we assume both the armature and field are connected. We then assume that the A terminal is the other armature or brush connection while the S terminal is the field connection. We suppose that you will drive this generator at the proper speed by using an engine of some sort. In making installation of this kind, one thing to check up is the direction of rotation. The easiest thing to do first is to wire it up either with permanent wiring or temporary wiring and connect the two batteries.

You can then throw the switch and see which way the generator will run as a motor. It should then be driven in the same direction by the engine. Afterward when you have everything working correctly, you will start up the engine first and adjust the rheostat until the voltage indicated by the meter is a little higher than the battery voltage. For example if you have four batteries on the line and each is a 6 volt bat-

install an automatic switch. Name of concern supplying such switches will be given by separate letter.

BETTER SELL A NEW HORN

Q.—What are the wire specifications for field coil of Sparton model P. U. 6 volt horn and where can same be procured?—David T. Elsberry, Cando, N. D.

We believe you are making a mistake if you try to rewind an electric horn. When a horn has been used so long that the windings are burnt it is probably time to sell a new one. On the other hand if it really is a case of repairing the horn, then it would be well to get the necessary coils from the factory. If you have very little work in the shop and can afford to putter around winding the field coil for a horn, then you can use micrometers and measure the diameter of the wire, refer to a wiring table and order the small quantity you need, but the recommendation of MOTOR AGE is that you spend your time on selling or on service jobs which are more worth while.

Armature and Magneto Core Testing

Q.—I am opening an auto electrical shop that has direct current, 110 volts. Would appreciate information on armature tests for short circuits using direct current. Is there such a thing as a direct current growler or any other device on the market which tests armatures using current of this kind.—B. H. Bonner, 195 Claremont Ave., New York, N. Y.

The growler test is the best for armatures but requires alternating current. If you have nothing but direct current the best thing to do would be to get a rotary converter. You should be able to get one of these for about \$25.00 or \$30.00.

Q.—Could you supply diagram of a magneto core tester?

We assume you mean a magneto core complete with winding. On a core of this type you will find three wires extending from the coil, two of these being the primary connection and the other the secondary connection. You can test this armature core exactly as if it were a battery ignition coil. Run battery current through the primary and through an interrupter which has a condenser in it. Then bend the end of the secondary connection over toward the primary so as to form a gap about $\frac{1}{8}$ in. If you wish you can run separate leads up to an adjustable spark gap. This would be desirable if you are going to test for any length of time.

CLASSIFY THE TROUBLE FIRST

Q.—I have a 1923 Chalmers 6 in which new rings have been installed. I have also ground the valves twice, checked valve timing and put on new coil and distributor, also re-wired the car and put in new spark plugs and still it misses at high speed. Also tried a new carburetor. What would you suggest?—D. W. Griffith, Carter's Garage, 2743 Jacob St., rear, Wheeling, W. Va.

We would suggest testing to see whether the trouble is due to ignition or not. To do this remove a wire from one of the spark plugs and hold it within $\frac{1}{8}$ in. of the plug and run the engine at comparatively high speed so as to correspond to the speed at which the missing occurs when car is operating. If spark misses you can blame it on the ignition. With new coil and distributor the trouble might be in a poorly grounded distributor where the primary current has a hard time getting back to the engine. A wire firmly connected at the distributor and some point on the engine would correct this condition. The best way to check the spark is to listen to it with a tube of paper about $2\frac{1}{2}$ in. in diameter, one end of the tube being held near the spark and the other end near your ear. If trouble is not due to ignition there is a chance that a valve is sticking.

Answers to Readers' Questions

Axle Adjustments on 1923 Jewett

Q.—A Jewett 1923 model recently came into the shop with both bearing races of the pinion shaft broken. In reassembling the new races the gears howled and we opened up the axle and washed it out thoroughly and adjusted it very carefully leaving more backlash between the ring gear and pinion. The gears still howl. Is there supposed to be any adjustment of the pinion? I believe the trouble is due to improper pinion adjustment, but can see no way of adjusting same. The howl is perfectly steady and is there all the time either pulling or coasting.—Hector Johnson, North Ridgeway Garage, Medina, N. Y.

If the bearing races were broken we wonder if it would not have been better to put in complete new bearings instead

ment so that you do not cause the pinion to bind when meshing with the ring gear. The teeth of pinion and ring gear should line up with each other. In addition to having the teeth of pinion and ring gear line up with each other they should bear fairly evenly over the whole tooth length except that it is permissible to have a slightly heavier bearing at the small end of the tooth. This can be tested by cleaning grease out of the axle and painting the teeth with either white or red lead. Then with the axle jacked up you can run the engine and drive the axle with the brakes applied so as to put a slight load on the gears. This will wipe off the paint and show you where the teeth are bearing against each other.

WANTS CHEVROLET SERVICE MANUAL

Q.—Please advise where I can secure a good book on repairing the Chevrolet, especially the late models. I am intending to enter the Chevrolet field and would like to learn all I can of the proper methods of overhauling this car.—Georgia Subscriber.

We have in our files a couple of repair manuals on Chevrolet cars. This manual is a paper book about 5 by 8 in. square and a quarter inch thick. We do not see any price marked on it and believe that you can get one of these by writing to Chevrolet Motor Co., Detroit, Mich. If there is any charge for this book it would be only a nominal charge. While it is possible that this is for distribution to Chevrolet dealers only, still there is nothing on the book to indicate this. You may find that if you specialize on Chevrolets that there are other service helps, such as flat rate information which the factory will be able to supply.

AUBURN EMERGENCY BRAKE

Q.—Can you explain how to adjust the emergency brake of a model 6-66, 1926, Auburn car, where the brake is mounted at the rear of the transmission.—Montana Repair, Inc.

We are showing an illustration which we think will be of assistance in making the proper adjustment. There are just two points that require adjusting and these are easily reached by raising the floor board. The brake band and lining at X may be adjusted so as to obtain a firmer grip on the drum and the ends of the brake band and lining may be adjusted at Y. At the point marked X turn the screw to the right until the clearance between the lining and the drum is about 1/32 in. Then at Y turn the nut upon the bolt to the left until the clearance at both ends of the band and lining is approximately 1/32 in. When it is necessary to remove the brake band or when relining, bolt Z can be easily removed by unscrewing nut Y. To keep brake mechanism operating smoothly the parts should be well oiled.

Test to Find Oil Pump Leak

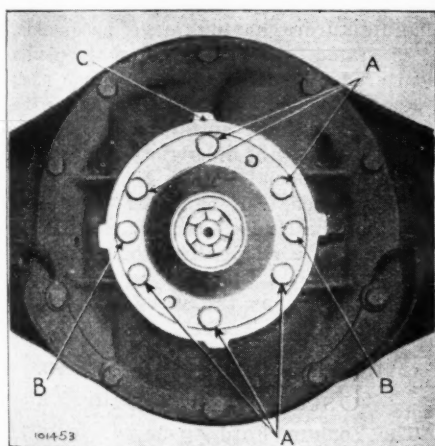
Q.—We have a Willys Knight 1920 on which the oil pump fails to pump oil when engine starts, although it begins to pump after engine has been running about five minutes and then works properly. Sometimes it must be primed before it will start to pump. I worked on the pump and removed radiator and found the gasket leaking. I repaired same and now pump works fairly well except when engine stands any length of time.—Oscar Kirchner, LeRoy, Ill.

There is probably a leak in the connection between pump and oil sump. When the leak is difficult to find it is sometimes advisable to take the whole oil pump assembly out of the engine, at least that part of it from the pump down to the oil supply and stop up the ends and use air pressure and a tank of water to find out where the leak occurs. Another possibility of pump trouble is in excessive side play at the gears. This should not exceed .003 in. Where gears have operated a long time they need replacing as the teeth do not mesh tightly together and allow leakage to take place.

WHO MAKES THESE VALVES?

Q.—I am in the valve business, doing nothing but refacing and reseating valves and having all equipment for this work. Most of the work is done for garages where they cannot well afford the necessary equipment. A short time ago I ran across a set of bronze valves which had already done 25,000 miles in a Buick six. These valves were the same composition all the way through and after 25,000 miles service did not have one seat the least bit burned and had not warped at all. I would like to know who makes these valves.—Kwick Way Valve Facing Co., 625 Court C., Tacoma, Wash.

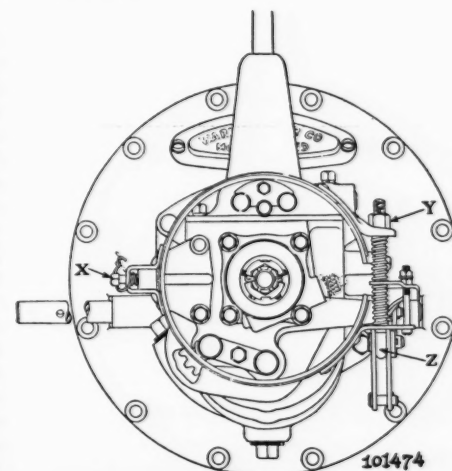
We have been unable to locate the maker of a valve of this material and publish this inquiry hoping that some reader or perhaps the maker of the valve in question will give us the necessary information.



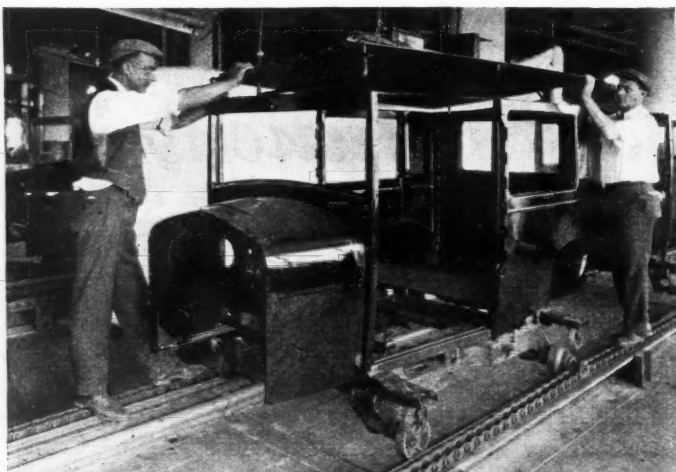
Cap screws and shims adjust this axle

of races only. It also occurs to us that possibly the pinion shaft is not perfectly true and may account for the trouble. If adjustment does not correct the condition it might be well to take the axle apart and rotate the pinion shaft in a lathe to see whether it is bent or not. We are showing an illustration which you can refer to. There are eight cap screws, six of them marked A and the other two marked B. If there is any end play in the pinion shaft you can take out all eight of these cap screws, then put two of them back in the two holes shown in the illustration and turn them in until the end plate is removed. You can then remove shims until you get the proper bearing adjustment.

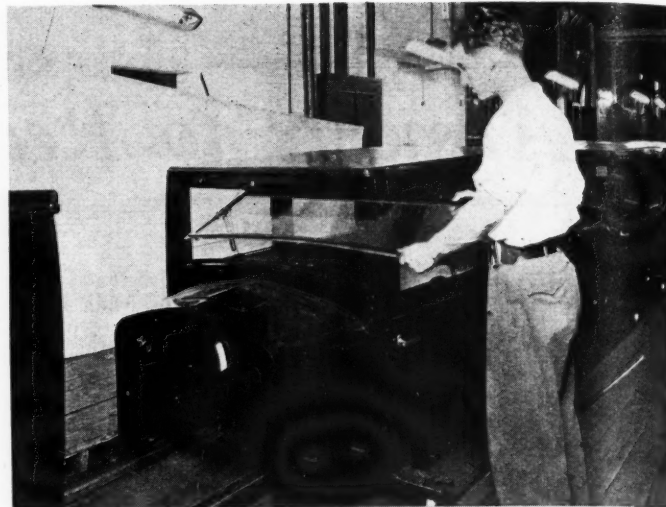
If the bearing adjustment is correct and you merely wish to move the pinion back and forth, you can loosen the six screws marked A and then turn the adjusting ring one way or the other. A complete turn of this ring moves the pinion 1/4 of an inch. Before you move the pinion it might be well to move the differential ring gear a little bit to the left, by means of the differential adjust-



Auburn transmission brake adjustments



Checking body at six points with roof template



The windshield slides into place

Essex Now Made *with* New Type Steel Bodies

(Continued from page 21)

shield frame support. The metal is left slightly upset, so that there is a wedge action tending to hold the windshield tight when it is in the normal closed position. The entire shield can be slid out endwise. There are no joints that rain can leak into and there is no chance for rattles to develop.

When the bodies are assembled in this plant, they receive an inspection and are passed out and loaded on trailers capable of taking 16 bodies at a time. They are then transported to the main factory buildings, where they are upholstered, roofed, wired and joined to the chassis just after it has completed its final assembly. The bodies are unloaded by a continuous chain elevator, placed on upholstery assembly line which takes them up to the beginning of the final car assembly, where they are dropped on a chassis in the usual manner. On the way to the chassis the bodies are striped.

The unusual part of the trimming operations is the fact that because so little wood is used, the attachment of the trim must be made to metal instead of being tacked in the usual way. The wood frame known as the header is bolted and screwed in place. This header or roof frame laps over the edge of the body frame. Power tools, air operated, are used for setting up nuts and screws.

The rear quarter windows are made as a sub-assembly. This is distinctly new practice, as they have always been assembled right on the main line. The quarter windows are assembled on a short conveyor adjacent to the main conveyor, making it very convenient to do the work at waist height instead of handling it in some inconvenient position on the trim line. These windows as well as all the others are equipped with weather strips inside and out, not only on the inside as is usual.

The trim and upholstery are truly removable which is, of course, a factor in the body service work. This fully de-

tachable upholstery and trim coupled with the method of assembling the body, makes possible body service work which otherwise could not be undertaken. This practice is not exclusive to this car but is typical of the new way of doing things in a body shop, and the appearance of a trim line such as this is in marked contrast to the old trimming operations, where the trimmers tacked on trim while practically standing on their heads. Even the trimmers work in a different way. The old-timers take a mouthful of tacks and feed them by the tongue to the fingers one by one. They are pushed into the trim and driven home with the hammer. The new generation of trimmers take a mouthful of tacks and feed them by the tongue to the head of a magnetic tack hammer, saving several motions. The old-timer is strangely slow in comparison and it is very noticeable in a group of old and new trimmers.

An exceptionally large drip mold gutter is used on this car. When this, and the half-round that incloses it, as well as the fabric mold piece at the rear are put on, the body is ready for final inspection. This is a detail inspection covering the work up to this time.

The running boards, radiator assemblies and the instrument board are all sub-assemblies. These are handled on conveyors operating at proper speed and at convenient height. This method has been found to give efficient and economical results. Another economy which illustrated the amount of thought that has been given to detail, is the use of the small pieces left over from the top deck trimming, for drag link boots. Even the upholstery on the seats is assembled on conveyors with a saving of one-third the cost. Taking the entire trim department, it is claimed that it would take 75 per cent more people to do as good a job in the old fashioned way.

Many of the economies on the assembly line are only possible because of the

large volume. As a matter of fact it is claimed that this is the largest assembly plant in the world under one roof. Other manufacturers having large production, it is stated, have their assembly plants scattered. Because of the volume such items as special material feeders for the sewing machines, cutters which handle 175 thicknesses of upholstery at one time, and other special handling methods can be introduced. It is stated by production men in Hudson employ that taking the plant as a whole, the productive ability is about six times as great per unit of floor space as the usual body plant.

Ancient Ford, Still on Go, Used to Boost Sales

The Yoakum Ford Agency at Yoakum, Texas, is showing 'em by comparison the improvements which have been made in automobiles during the past two decades, and by demonstration of what may be expected if care is given an automobile. The agency is displaying a Ford car which is a little more than 23 years old. The engine number of the ancient model is 726 and the car was put out in 1903. The car runs.

The Yoakum dealers ordered special tires for the ancient model and it is driven about the streets frequently. It makes quite a noise but it goes where it starts and comes back. The local dealers bought the old Ford from Henry Kuester. He bought it second hand in 1913 and ran it for three years regularly. Kuester said there are many miles of service in the car and that he let the dealer have it as a curiosity.

Towns First Garageman Dies

NORTH ADAMS, Mass., July 17.—Fernando L. Rand, proprietor of the first automobile garage ever conducted in North Adams, died here recently, aged 75 years. He entered the business in 1904 and retired in 1916.

SEVERAL NEW SHOP FACILITIES

Ramsdell Tire Inspection Machine

A tire inspection machine which gives unobstructed view of the interior of the casing is announced by The Ramsdell Mfg. Co., 6536 Carnegie Ave., Cleveland, Ohio. The fingers of the machine grasp the edges of the tire firmly, spreading it open, so that every break or bruise or cut is brought into view. The machine can also be used to inspect the tread of the tire, it being turned on the two rollers provided for this purpose. The price is \$47.50 F. O. B. Cleveland.

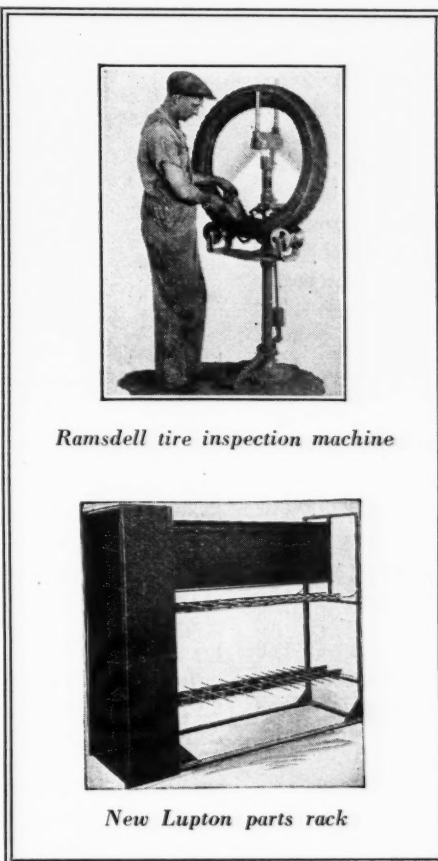
Clutch and Brake Relining Machine

The Blake and Buell Co., Glendale, Cal., is producing an electrically operated machine which removes old lining and drills, countersinks and rivets on new lining. The electric motor is protected with a thermostatic overload switch. Other features claimed for the device are heavy end frame construction, steel gear and rack riveting device, an adjustable countersink that prevents drill from slipping and a sliding locating pin for aligning the drill. Less than 1 sq. ft. of space on the work bench is required.

New Hel-Dust Vulcanizer

A new type of vulcanizer is announced by the C. A. Shaler Co., Waupun, Wis. This vulcanizer works on the same general principle as the Shaler five-minute vulcanizer, except that the vulcanizing pan or cup is not thrown away each time, but is used continuously. It is made of heavy metal. The heat is supplied by a fuel that is powdered. This powder, called Hel-Dust, contains aluminum which burns at 6,400 deg. Fahrenheit. When the Hel-Dust is lighted the aluminum burns and with the other ingredients form a cake that retains the enormous heat and transmits it slowly to the thick metal vulcanizing cap.

The outfit comes complete with five



Ramsdell tire inspection machine

New Lupton parts rack

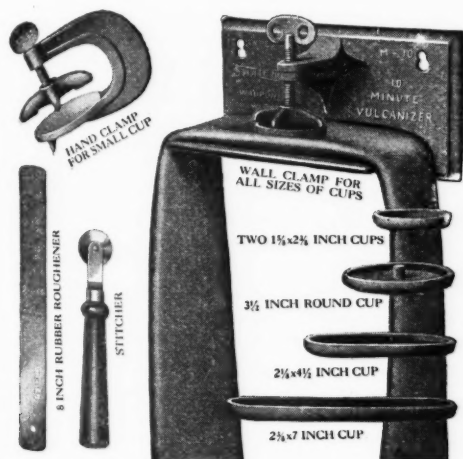
vulcanizing cups of assorted sizes, two clamps—one portable, the other to be attached to the wall, stitcher, and rubber roughener. Type M-No. 10 is designed for the vulcanizing shop, while type M-No. 15 is designed for the motorist. The new vulcanizer will take care of anything from a pin hole to a slit $6\frac{1}{2}$ in. long at one setting. Additional details may be obtained from the makers.

A New Paint Spraying Gun

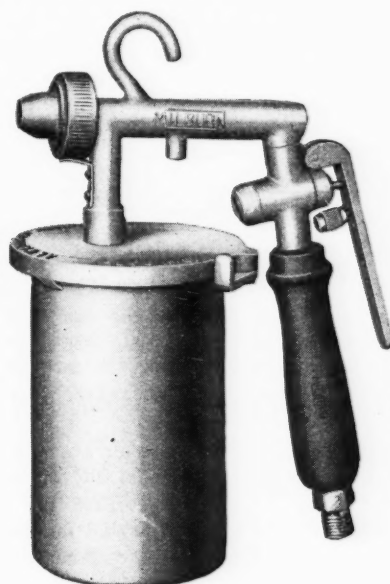
Milburn Paint Spray is the new product of the Alexander Milburn Company, 1416 W. Baltimore St., Baltimore, Md. It is designed to spray paint, varnish, etc., to any surface which is to be finished. The paint enters the large annular chamber surrounding the air nozzle, from which it is atomized and expanded in a venturi-shape. The atomization is complete and is regulated by a mere turn of the nozzle; from a small to a large spray or is entirely shut off. It is also possible to bring into play a stream of air for dusting purposes, thus increasing the speed of the work. A pressure of 40 pounds is desirable and gives excellent results. This pressure, however, can be varied to suit the work. Carbonic gas tanks can be employed to give the necessary pressure. It is said that the use of this spray device makes it possible to paint a car in one-third the time ordinarily required with the use of a paint brush.

Rack For Extra Long Parts

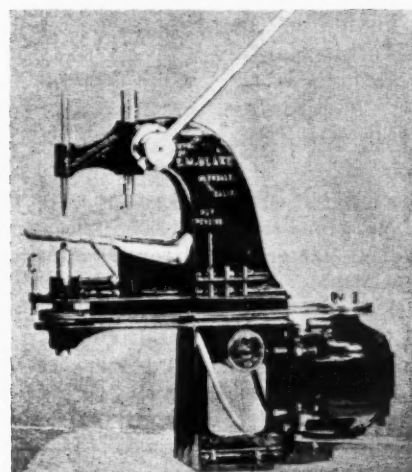
For the storage of automobile parts over 36 in. in length, which are difficult to store in ordinary shelving, there is a long parts rack made by David Lupton's Sons Co., Allegheny Ave. and Tulip St., Philadelphia, Pa. This rack stores the parts on end and uses the least possible floor space. In this way the parts are easy to get at, easy to load and unload. There are a total of 56 spaces. Rods can be removed to make larger spaces if desired. A special construction at the end takes care of ignition cables. In the upper and lower frame of the rack rods are spaced at 3, 6 and 9 in. intervals. These rods bend back to keep the parts from tipping. They also turn to allow the parts to enter and then turn back to hold them firmly in position. Label holders permit the proper numbering of spaces. Dimensions are 6 ft. long, 2 ft. wide and 5 ft. high.



Shaler Hel-Dust vulcanizer



Milburn paint spray



Clutch and brake relining machine

Keeping Them Sold Through Service

(Continued from page 13)

he not be satisfied with the work done to his machine. In this manner the earnestness and sincerity of the firm to fully please, is impressed upon the customer.

As a further precaution against the neglect of possible dissatisfied customers, a man, especially qualified, is retained by the firm as official "trouble-shooter." His duties in this field consist of personally calling upon people known to have made complaints, either directly or indirectly.

"Our policy is to recommend as little repair work as absolutely necessary to the efficient operation of the car without jeopardizing the machine by defective or badly worn parts. Sometimes, I think, we lean almost too far in this direction, for we always give the car the benefit of the doubt. However, I am impressed with the fact that our customers rarely question our recommendations, and seem to realize that we want them to get the maximum mileage out of all parts of their cars, rather than pile up unnecessary service bills.

"The service department is one part of the auto business where salesmanship should be taboo.

"It is also a hard and fast rule of our service department never to do repair work, before the needs of the job are thoroughly explained to the owner. Operating on the flat-rate basis, we can tell him exactly what the job will cost before work is started. This eliminates any subsequent argument about cost. If the tester misjudges the needs of the job, and it develops that more work and replacements are required than originally anticipated, this fact is made plain to the owner, before the work proceeds.

"However, to my mind, service extends farther than the repair department. It begins before the car is sold. The contact of our salesmen with prospective buyers and even after the car is sold, is of prime importance. The salesmen get closer to our customers than any other members of the staff.

That the public appreciates and understands the sincerity of Mr. Sands is witnessed by the fact that since 1920 the Sands Motors company has increased its sales from 256 cars in that year, to over 2,000 cars sold in 1925; the floor space of the firm has increased from 29,000 square feet to 87,000 square feet; the retail volume of this business has increased from half a million to more than two and one-half million in 1925. The sale of cars for the months of January, February, and March, this year, has increased 62 per cent over the same period last year. The month of March was the banner month in the history of the organization.

Mr. Sands attributes much of the success of his organization to his assistants, particularly William P. Culberson, general manager; and Donald F. Gilmore, superintendent.

Give the Used Car a Fair Chance

(Continued from page 11)

A result is that in some months about as many used cars will be sold as new cars.

A large percentage of used car buyers is obtained from persons who have already purchased used cars of the company. This shows that there may be a good "repeat" used car business. This is exactly what is wanted to help move used car stocks.

Used cars are advertised by the company through display space in all the city Sunday newspapers and on Tuesday and Wednesday of each week in two evening papers, as well as in one of the morning papers. DeBear uses the classified columns also, but emphasizes the importance of his display space, which is ordinarily uniform in general character, occupying $7\frac{1}{2} \times 4\frac{1}{4}$ inches. At the top of each advertisement is run a cut of the Chrysler seal and symbol on a ribbon reading, "We Will Keep Faith." The headline below this, "Honest Values—Used Cars," is kept standing most of the time, although at certain times weekly changes have been made. The subheading, "Once a Chrysler Always a Chrysler," is used extensively. Special values in Chryslers head the list, with frequently a cut, and below are listed under a separate heading, "Also Good Cars of Other Makes." The words, "rebuilt and refinished" appear in connection with the Chrysler values advertised. Sometimes the good mileage left in a car is used as a part of the basis for advertising it, for instance "A 1924 Chrysler Brougham, Good for 35,000 to 40,000 miles." Of course this general form of publicity is changed in the case of events like a special spring sale, and the like. But there are no "whirlwind sales" and no circus stuff.

Reasons for Generators Overheating

(Continued From Page 15)

are prepared for the test. The armature is then turned by hand while with the other hand the contact at the battery is made. If there is no perceptible drag the armature bearings are fine. In most machines there will be considerable drag, but no spot in which the armature seems to rub. With armature rubbing there will be one place where it is nearly impossible to turn the armature or at least the drag will be very noticeable at some point in the armature rotation.

Auburn Sets New Mark for Long Wheelbase

(Continued from page 24)

vision mirror are standard equipment as well as vanity case, smoking set, electric cigar lighter and mirrors in the rear compartment. Dome light and heavily tasseled silk cord pull ropes are also part of the equipment of this car.

One feature is that all passengers in the car sit on the same level, the auxiliary seats being so designed that their occupants are not any higher than the other passengers.

Auxiliary seats fold into a special com-

partment in the back of the front seat when not in use, hiding them from view. Two small compartments are provided for gloves and small packages in the back of the front seat.

Smith expanded steel wheels are standard equipment on this model and chassis construction is similar to that of the other 8-88 models. Four wheel mechanical brakes are supplied, internal expanding front and external contracting rear, and tires are 32x6.20 balloon.

A chassis frame, with 7 inch deep channel, $\frac{3}{8}$ inch stock, and having seven cross members, is used.

Even though this model is constructed on an unusually long wheelbase, special variable ratio steering gear is said to give unusual ease of handling.

Factory production is rapidly getting under way but orders are already on file for all of these cars that can be manufactured during the next two months, officials of the company announce.

EDITORIAL

The Salesman's Responsibility

NOT infrequently when one goes into a large department store which bears a fine name for honest policies and truthful representations he receives a jolt from a clerk who in zeal to sell makes reckless statements about the merchandise on his counter. Such practices would not be countenanced by the house but the "house" is not aware of all that is said by clerks and hence, every now and then, a clerk will be guilty of breaking a rule of policy upon which his company depends for the building of public confidence and good will.

One of the big problems of such department stores is control of the conduct of all employees to an extent that irresponsible utterances will not interfere with the development of the great structure of integrity upon which the organization's operations rest. The effort is to bring about every possible harmony between the big aim of the company and everything said and done by employees.

The department store has a larger problem in this respect than the automotive merchant but the two problems are identical in substance. Automotive salesmen must be made to know that the integrity of the house, as far as their sales contacts are concerned, will be gaged largely by the integrity of the salesmen, themselves. Thus, the salesman is in a position either to help build up public confidence in his company or mischievously tear it down through his statements and conduct in the field. A company can not hope much for the development of good will unless its representatives "get the idea" and live it.

A company's success is known by the books it keeps.

Clean Deal Prospects

INCREASED sales, an increase in the proportion of "clean" deals and consequently a reduction in the burden imposed upon the used car department—sums up the benefits derived by a flourishing dealership through systematic survey of the new car market.

This company is not old at surveying but it has made use of it long enough to know that it has brought about a very pleasing change in business conditions. Credit for the change is given to market survey. Before systematic surveying was practiced fewer cars were sold and the proportion of trade-ins was too high.

Without surveying it was impossible to locate many prospects who did not have old cars to dispose of and consequently, without surveying, the proportion of used cars it was necessary to handle was higher than good business management would justify.

There is only one best way to increase the proportion of "clean deals" and that is by first building up a comprehensive prospect file which will reveal the largest possible number of *clean deal prospects*. You will not find clean deal prospects in a list of car owners, save for those rare birds who want a second car and do not want to trade in an old car. The only way to unearth clean deal prospects is by canvassing outside the owner list, building

up a file of persons who do not own cars but who are able to and who should own cars.

Tedious work! Yes. Market surveying requires a lot of work, but it is work that pays fine returns in the end and a device which is making money for many dealers who formerly did not make very much. In all corners of the trade MOTOR AGE finds dealerships that swear by the systematic market survey. There is bound to be a reason.

Bad crediting commits double murder—killing both customer-friendship and profit.

Criticisms by Customers

THE limits to which some large dealerships go in efforts to cultivate customer-satisfaction frequently cause us to open our eyes. Following up the car sale, accessory sale and sale of maintenance to make sure nothing has displeased the buyer is becoming one of the intensified practices in numbers of dealer establishments. Of course it would not be practical for smaller concerns to carry on such work on a scale that a larger institution could quite safely adopt.

But any automotive merchant can and should direct efforts along this line just as extensively as the proportions of his business and organization will permit.

The only merchant who is afraid to ask a customer for criticism is one who doubts the quality of his wares and the efficiency of his service. The merchant who believes in his stock and service efficiency is one who unhesitatingly goes to a patron for frank comment on goods bought or work done for him. And as a result of this solicited criticism such a merchant is in a position to correct weaknesses in his methods and organization and thus add to his ability to serve his customers well.

Seeking customer-satisfaction through the customer's criticism is not only a plan that holds customers but which, by educational benefits, makes the company a stronger merchandising force. Nothing is so helpful to progress as to know our faults.

Flatten the Curve

PRACTICALLY all sections of the country look forward to a second half-year with optimism. The first half on the whole was highly satisfactory and car sales continue to hold up exceptionally well for this period of the year. Likely the seasonal selling curve will be more flattened out this year than ever before.

The motor vehicle is becoming more and more popularly accepted as a medium of all-year transportation. As this sentiment spreads the seasonal selling curve will naturally lose its hump.

We hope some day to see no curve at all—but instead a line reasonably straight. Then we will have stabilization and dealers will have less uncertainty with which to contend. Let's talk all-year transportation more. That is the big thing to sell.

OUTPUT ON REDUCED BASIS

Only Few Factories Hit High Pace on New Models

Demand for Cars Is Entirely Satisfactory Considering Period of Year

NEW YORK, July 21.—Seasonal slackness continues to characterize the current situation in production and sales of motor cars and trucks. Although a few factories have swung into heavy output of new models, the majority are on a considerably reduced basis. Demand for cars is entirely satisfactory, considering the time of year.

Thus far the new models announced have represented distinct improvements in quality over the old, and prices have been unchanged or slightly advanced. This is a remarkable evidence of stability, in view of the highly competitive character of the market, and shows a definite determination to use the business-like methods of quality and aggressive merchandising, rather than the harmful weapons of price reductions.

The same trend is noticeable in field of instalment sales, which are now almost universally on a sound basis. Eight months ago it began to appear that the industry was selling instalment terms instead of motor transportation, but when the unfortunate results of such a policy began to be evident, the situation was quickly righted.

No one expects the last half of the year to equal to first in volume of business, but the outlook for excellent business is undiminished. To some extent the success of the months ahead depends upon the ability of dealers to clean up their stocks of used cars without disastrous losses, and a month or two of heavily curtailed manufacturing, by relieving pressure on the dealers, would be of the greatest help to them. This, to all appearances, is the policy being followed by many of the manufacturers.

Big Gain for G. M. Units

DETROIT, July 19.—In June General Motors dealers sold at retail 117,176 cars and trucks compared with 75,864 in June, 1925, and 65,224 in June, 1924. It is interesting that such sales this year were 54 per cent better than a year ago and 80 per cent better than two years ago.

In the six months ended June 30 the total retail sales of General Motors cars by dealers was 620,190, compared with

396,360 in the first six months of 1925, an increase of 56 per cent. Sales to dealers by the manufacturing divisions of General Motors in the first six months of this year totaled 636,087, compared with 389,209 in 1925, an increase of 63 per cent.

Dealers Sales to Users			
	1926	1925	1924
Jan.	53,698	25,593	33,574
Feb.	64,971	39,579	50,007
Mar.	106,051	70,594	57,205
Apr.	136,643	97,242	80,583
May	141,651	87,488	84,715
June	117,176	75,864	65,224
Six mos....	620,190	396,360	380,308

Division Sales to Dealers			
	1926	1925	1924
Jan.	76,332	30,642	61,398
Feb.	91,313	49,146	78,668
Mar.	113,341	75,527	75,484
Apr.	122,742	85,583	58,600
May	120,979	77,223	45,965
June	111,380	71,088	32,984
Six mos....	636,087	389,209	353,090

These figures include passenger cars and trucks sold in the United States, Dominion of Canada and overseas by the Chevrolet, Pontiac, Oldsmobile, Oakland, Buick and Cadillac manufacturing divisions of General Motors.

New Chevrolet Record

DETROIT, July 19.—The Chevrolet Motor Co., in June, broke all of its monthly production records when it made 77,241 passenger cars and trucks. Production for the first half of the year aggregated 384,573 units, compared with 249,834 for the same period in 1925.

April and May saw Chevrolet establish successive production totals of 71,157 and 74,617, respectively. The new June record exceeds May by 2,624 and is 22,295 greater than June of a year ago.

Hupp Breaks Records

DETROIT, July 19.—The Hupp Motor Car Corp. broke all its former sales records during the first half of 1926, when 26,943 cars were shipped. On July 1 the company had unfilled orders for \$2,500,000 worth of cars. Increase in business for the period was 30 per cent in excess of the volume for the same period in 1925 and 54 per cent greater than in 1924. On three different occasions during the period the corporation broke monthly sales records. March, May and June saw new marks hung up with June establishing the highest mark yet attained, when car shipments were valued in excess of \$7,500,000.

To Build Fisher Addition

JANESVILLE, Wis., July 19.—Specifications issued for the new addition to the Fisher Body division operated in conjunction with the Chevrolet branch factory at Janesville, Wis., call for a building 150x645 ft., with sawtooth roof.

Ship Star No. 400,000

NEW YORK, July 21.—Durant Motors, Inc., recently completed and shipped Star car number 400,000, a sport six roadster, at the Elizabeth plant. The company reports that each month of 1926 has shown an increase of sales of Star cars over the corresponding month a year ago, and that the increase for the first five months this year was 32 per cent.

The dealers organization has also shown a growth during 1926.

Webbers Incorporate

MILWAUKEE, July 19.—Articles of incorporation have been filed in Wisconsin by the P. H. Webber Co. of Racine, Wis., capital stock \$35,000 as the final step in the transfer of the entire operation of an Illinois corporation of same name from Hoopestown, Ill., to Racine. The Webber company manufactures automotive units, parts and equipment, and is specializing in the production of the "Bat" Supercharger under license from P. J. F. Battenburg. The Webber company now occupies Unit No. 12 of the Racine Industrial Plant.

Cadillac Promotes Lewis

DETROIT, July 19.—W. W. Lewis, advertising manager of Cadillac Motor Car Co., has been promoted to the position of assistant general sales manager and director of advertising. Mr. Lewis joined Cadillac as district sales manager in August, 1922, and became advertising manager in November, 1923, on the promotion of Verne E. Burnett to direction of General Motors institutional advertising.

Before joining Cadillac he was with Peerless Motor Car Co. for six years as district manager and later as general sales manager.

Packard Salesmen to Meet

DETROIT, July 19.—On August 2, 3 and 4 the Packard Motor Car Co. will entertain the 125 master Packard salesmen from various points in the United States. Every year Packard sets a specified goal for salesmen to attain to be rated as master salesmen, and, in recognition of attaining this honor, the company brings all the master salesmen to Detroit for a three-day program of entertainment.

Peerless Holds Picnic

CLEVELAND, July 19.—The Peerless Motor Car Corporation paused for a day in the midst of a most prosperous season, closed shop and took all office and factory employees to Euclid Beach for a picnic. Plants Nos. 1 and 2 clashed on the baseball diamond, and some lucky employe is to be given a Peerless sport phaeton.

AT MOST AUTOMOBILE PLANTS

Marmon Debt Paid

INDIANAPOLIS, July 19.—The financial report made by the Marmon Motor Car Company here this week shows that for the fiscal year ending June 30, the company not only has paid off all its bank indebtedness of \$1,888,000 during the year but also made a net increase in earnings for the year of \$357,102. It is now planning increased production.

"While final figures on the year's operation are not yet available, it is estimated that the company will show net profit of approximately \$1,800,000. In the previous year the company reported profits of \$1,442,898," President Williams said.

"The balance sheet is expected to show current assets of \$3,575,000 against current liabilities of \$825,000. Current assets of June 30th, 1925, were \$4,370,922, and the current liabilities including bank debt were \$2,978,030."

Gardner Advances Nenke

ST. LOUIS, Mo., July 19.—Colonel Halsey Danwoody, vice-president-general sales manager of the Gardner Motor Company, Inc., St. Louis, announces R. O. Nenke, sales director in the territory lying between St. Louis and Pittsburgh, has been assigned as sales manager of the entire New England territory, with headquarters at 5-7 Brighton Avenue, Boston, Mass. Mr. Nenke has been associated with the Gardner company in sales work for a number of years.

Finds Southwest Good

CLEVELAND, July 17.—Optimistic reports as to the business outlook in the central and southwestern parts of the United States are brought back by Charles A. Tucker, general sales manager of the Peerless Motor Car Corporation, who recently returned from a trip through these sections. "Especially in the southwest I found crop conditions excellent with prospects bright for an unusually prosperous year for farmers. In Oklahoma and Texas business men are unanimous in their belief that the peak in the present trade cycle will not be reached for some months yet."

Forest Denies Merger

NEWARK, N. J., July 19.—J. K. Elderken, president of the Forest Electric Company, has sent a notice to all distributors of the company's products denying reports to the effect that the Forest Electric Company has been included in a merger of four equipment manufacturers. The report referred to had it that the Forest company's products would be taken over in the merger and manufactured in Kalamazoo, Mich., and that the factory here would be closed. In his bulletin to distributors Mr. Elderken said, "A merger plan was formed in which the Forest Electric Company was

to merge its automotive products only, continuing the manufacture of a greatly broadened line of radio power supply devices in the same factory with the same organization except for a few minor changes in the sales department. In so far as the Forest Electric Company is concerned the merger plan has been abandoned and we wish to emphatically deny all rumors and articles to the effect that we are a party thereto."

Fisher Ohio Profits Gain

CLEVELAND, July 19.—After all charges had been deducted the Fisher Body Ohio Company earned \$5,719,924 for the fiscal year ending April 30. This is better than \$57 a share of 100,000 of common stock and compares with \$1,247,498 for the previous year after \$704,133 in preferred dividends was paid. The balance of the \$10,000,000 of preferred was retired Oct. 1, 1925, at 110 and accrued dividends.

L. R. Scaife, treasurer and in charge of the Cleveland plant says that the company was in steady operation during the entire year and is booked solid for the rest of the current year.

The Fisher plant which is now the largest in Cleveland in point of the number of men employed has 6,200 men working 9 hours daily with overtime in some departments, Scaife said. The plant works chiefly on bodies for Chevrolet and Oakland but has some of the Chrysler business and other General Motors work.

Fiat Changes Policy

PARIS, July 3.—(By Mail).—Fiat interests in France, which for the past 20 years have been in the hands of a distributor were this week taken over by a new organization with the title "Societe Anonyme Francaise des Automobiles Fiat," which is virtually a branch of the parent company at Turin, Italy. This move is in accordance with the general Fiat policy, the firm having, during the past few years, established its own branch selling organizations in Argentina, Spain, Switzerland, Poland, England, Turkey and Greece.

Roth Company Expands

HASTINGS, Neb., July 17.—A new \$100,000 manufacturing plant for the G. A. Roth Manufacturing Co., Hastings, Neb., is being completed. Roth officials say it was necessary to build the new structure in order to take care of expanded business, the old quarters having been outgrown. The new plant will be thoroughly modern and will have two stories and a floor space of 35,000 square feet. Additions may be made to the building later as a result of the construction arrangement. Roth is maker of the "Red Cat" line of automotive accessories.

Federal Plan Approved

DETROIT, July 17.—Stockholders of the Federal Motor Truck Co. met and approved the proposal to increase the company's capitalization from 200,000 shares of \$10 par value common to 500,000 shares of no par value and to pay a stock dividend of 100 per cent, which will require 400,000 shares of the new issue. By the plan, the remaining 100,000 shares will be utilized for stock dividends, payable in quarterly instalments of about 2½ per cent. The new stock will carry an annual dividend rate of 80 cents and application will be made to the New York Stock Exchange to have the stock listed.

Murray Contracts Marmon

DETROIT, July 17.—Federal Judge Charles C. Simons has approved the signing of a \$15,000,000 contract between the Murray Body Corp., and the Marmon Motor Car Co., whereby Murray Body is to build all Marmon bodies for a two year period. The court, several days ago, approved expenditure of \$200,000 by the body corporation for the establishment of a plant in Indianapolis to take care of this work.

New Cletrac Model

CLEVELAND, July 19.—The Cleveland Tractor Company announces that it will go into regular production on its new Model A Cletrac about July 15. This tractor adheres closely to all principles of the former models except that it has a six-cylinder motor instead of the four, is larger and has greater capacity. The "Snap" oiling system, copyrighted by the Cleveland Tractor Company, is also featured in the new model. This system permits the operator to oil the entire machine by one stroke of a plunger operated from the seat. The model K has been reduced in price from \$1875 to \$1775.

Harrison Passes 5,000,000

ROCHESTER, N. Y., July 17.—The Harrison Radiator Corporation, which 15 years ago started business in a small way at Lockport, has passed the 5,000,000 production mark. In the first year of its existence the firm produced 240 radiators and employed 18 men. Today it employs over 1,500 men and is Lockport's largest industry.

Bendix Brake Shipments

CHICAGO, July 19.—May production and shipments of the four wheel brake division of the Bendix Corp. totaled \$293,000 according to a report to stockholders by Vincent Bendix, president. For July the company was scheduled to ship approximately \$500,000. These month's shipments compare to a total shipment in 1925 of \$325,000.

Uniform Traffic Laws Sought for California

Movement Launched to Do Away with Confusions Through Present Muddle

SAN FRANCISCO, Cal., July 17.—A state-wide movement which seems likely to result in the establishment of uniform traffic laws in all the municipalities of California, was started recently in San Francisco at a meeting attended by representatives of practically all the cities in central and northern California. A similar conference is to be held in Los Angeles, attended by representatives of all southern California cities and by delegates from the conference at San Francisco. Legislative and police departments of all the cities sent representatives to the meeting, which was held in the San Francisco city hall.

The meeting was the direct outgrowth of a resolution adopted at the San Diego convention of the County Supervisors' Association of California, last March. This resolution calls upon the cities and counties of the state to re-frame their traffic regulations with a view to standardization and uniformity. "Much public inconvenience results from the many forms of traffic regulations adopted by the various municipalities," says this resolution. "Many of these regulations are conflicting and confusing, especially to those who travel frequently from place to place. We urge the formulation of a uniform code of traffic regulations and its immediate adoption by cities and counties."

New Reorganization Plan

DETROIT, July 19.—A new plan of reorganization of Murray Body Corp. which the merchandise creditors committee and large holders of preferred and common stock of the company have already approved, calls for formation of a new company of which W. R. Wilson, former president of Maxwell Motor Corp. would be chairman of the board.

Under the plan of organization, the new company would assume the first mortgage 6½ per cent, ten year bonds. Holders of bank indebtedness would receive 25 per cent of their claims in cash and 75 per cent in common stock of the new company at \$45 per share.

Holders of existing 8 per cent cumulative preferred will have the option of (1) paying \$35 per share for each share of their old preferred and receiving two shares of new company common stock for each share of the old preferred, or (2) making no cash payment and receiving three-fourths share of new company common for each share of old preferred.

Holders of common are to have the option of (1) paying \$10 for each share of old stock and receiving new company common at the rate of one-half

"Light Six" Name Plates for Ajax Owners

DETROIT, July 19.—Owners of Ajax cars are being transferred to owners of Light Nash cars by the simple expedient of applying the new name-plates and hub caps which have been supplied by the factory for this purpose. Nash dealers throughout the country have been advised by the factory to get in touch with Ajax owners and make the change in plates and caps where desired. The purpose of the change is to prevent owners suffering from a depreciation that might arise because of the change in name.

In states where certificate of title laws apply, or laws which identify a car specifically by name, the change is being made by first complying with necessary state requirements. In Michigan the certificate of title is first amended and the change in name plates then made. Car dealers with used Ajax cars in stock have been advised to take title to these cars in the new name and then apply for the new name-plates if they desire to sell the car under its new name.

share for each share of old, or (2) making no cash payment and receiving one-fifteenth share of new company common for each share of old.

The new company is to have one class of stock of about \$290,000 no par shares. It would then begin operations with a simple capital structure consisting only of the present bond issue, of which \$3,750,000 it is estimated will be outstanding, and the new issue of stock.

Expect Good Attendance

CLEVELAND, July 19.—Notices sent to members of the Cleveland Automobile Manufacturers' and Dealers' Association by Herbert Buckman, manager, and calling attention to the meeting of the A. E. A. jobbers to be held in Hotel Winton, July 23 have met with unexpected response. It is now assured that several hundred dealers, distributors and jobbers, will attend the meeting. The assembly has been called to bring about closer cooperation between dealers and distributors and jobbers in a drive for better business conditions.

Talk Merchandising Plans

SEATTLE, Wash., July 21.—Two hundred Willys-Overland and Willys-Knight dealers from Washington, Oregon, Idaho, Montana and Utah gathered here for two days to discuss merchandising plans.

The meeting was held at the Olympic Hotel. J. H. Alfred of the Willys-Overland Pacific company presided and introduced in turn L. G. Peed, sales manager; R. M. Rowland, sales promotion manager and Ward M. Canady, president of the United Advertising Corporation, who made talks.

Quarter-Million Garage

CLEVELAND, July 19.—Work has begun on the construction of a large public garage at 2408 Prospect Ave. The building will be five stories high, cost \$250,000, and is scheduled for completion by the first of the year. The plant will be of brick, steel and concrete and will be operated by A. H. Fashjian and F. R. Walker. The Hunkey-Conkey Construction Company is the contractor.

Automotive Employment Off

WASHINGTON, July 19.—A decline in the number of employees in the automobile and accessory manufacturing industries is reported by the U. S. Employment Service, Department of Labor, in its industrial survey as of July 1. The decline in the automotive industry is accounted for largely due to June being an inventory-taking month for both automobile and accessory manufacturers.

Comparing the automotive industry with other major lines, the returns show about the same percentage of employment decline in all of them, with the exception of the iron and steel industry where there is little unemployment. Highway construction is at its peak and almost every county in the country reports highway construction progress.

Takes On Oakland-Pontiac

LOS ANGELES, July 17.—Sidney A. Briggs, for several years Wills St. Clair distributor for Southern California, has taken the dealership for the Oakland and Pontiac in Pasadena. Mr. Briggs succeeds Plank Brothers, the former Oakland dealers, and has taken over a large and beautiful building recently erected for them in the heart of Pasadena's automobile row.

Takes Holley District

DETROIT, July 19.—The Holley Carburetor Co. has appointed H. E. Christley district sales manager in charge of the western district of the United States, including California, Oregon, Washington, Montana, Idaho, Utah, Nevada and Arizona. Headquarters will be maintained at 709 Tribune Building, Oakland, Calif.

Fair Business Volume

CLEVELAND, July 19.—Automobile distributors and dealer organizations are experiencing a fair volume of business. July got away to a good start and the pace seems to be continuing. Used cars, except the lower priced models, are moving well. Considerable resistance is being experienced in clearing away the used cars of the lower priced class.

U. S. Makers May Enter World Association Soon

Report Says N.A.C.C. About Ready to Join International Bureau

PARIS, July 3.—(By Mail).—Negotiations are in an advanced condition, it is stated here, for the American automobile industry to take its place in the international association of automobile manufacturers, known as the "Bureau Permanent des Constructeurs d'Automobiles." As the result of negotiations opened by C. C. Hanch in 1919, a preliminary understanding was arrived at between the National Automobile Chamber of Commerce and the Bureau Permanent, but difficulties developing later, the N. A. C. C. never officially applied for membership.

Most of these difficulties have been removed and when the Bureau Permanent holds its next meeting in October it is expected that an American delegate will be present in an official capacity. It is understood that instead of the American industry being asked to pay 25 centimes (French) per worker employed, her annual dues would be limited to an amount equal to that paid by the two most important European automobile-producing countries, which at present are France and England.

It is believed that foreign automobile manufacturers will be admitted to the national shows in New York and Chicago and, according to Henri Cezanne, Paris show manager, American participation in the Bureau Permanent could be expected to open the way to better treatment of American exhibitors in the French show.

Participation of the N. A. C. C. in the Bureau Permanent should make it possible for American motorists to secure the advantages of the triptyque system now in existence among all European countries. Contrary to the general belief, this is not dependent on a Federal automobile law, but is based on Federal import duties. American trade interests in Europe are all convinced that it would be of value to them if privately owned American automobiles could be brought into Europe without the present cumbersome formalities rendered necessary by the exclusion of the United States from the triptyque agreement.

Plan "Super Service Station"

MILWAUKEE, Wis., July 19.—The East Side Buick Co. of this city, owned by C. P. Hatter, has been moved from 486 Milwaukee street to 461 Broadway where the firm has a ten-year lease on the three-story building involving \$125,000. Thirty thousand square feet of floor space is available in the new location. It will be known as Milwaukee's Buick Super Service station and 35 mechanics under N. B. Knope and four service sales-

McCarty Elected Director of Nash Motors Company



E. H. McCarty

KENOSHA, Wis., July 19.—At a meeting of the directors of the Nash Motors Company, E. H. McCarty, Nash general sales manager for the last four and one-half years, was elected a director. Mr. McCarty's experience in the carriage and automobile business goes back more than 20 years. Mr. McCarty was born in New Carlisle, Ind., and before coming to the Nash Motors Company he had served since boyhood with another automobile company in various capacities, from office work to branch manager at Portland and Dallas, and as assistant sales manager at the factory.

men under Bert Miller will be at the garage to give service. Among the features are an electrical signal system to record the progress of each job through the shop, pneumatic equipment for oiling, greasing, and various other operations, two wash racks having a capacity of 50 cars per day, and a large display room for reconditioned cars.

Salisbury Sales Manager

ST. LOUIS, July 19.—John T. Salisbury, who formerly was connected with the More Automobile Co., Marmon distributor here, has joined the force of the De Luxe Automobile Co., Oldsmobile distributor, as director of sales. Salisbury is one of the best known automobile men in St. Louis having been with the More Co. for 17 years. He was chairman of one of the most important committees of the St. Louis Automobile Dealers Association four times in handling the annual shows and has always taken an active part in dealer affairs.

General Motors Plans College of Technology

Institution at Flint Will Offer Advantage to 2000 Factory Employees

FLINT, July 19.—General Motors Corp. will establish a technical college in Flint to be known as the General Motors Institute of Technology. The college will be located on a ten acre campus near the Chevrolet Motor Co. and will offer educational facilities for 2,000 students in day and night classes, according to Harry Bassett, president and general manager of the Buick Motor Co., who announced the plans. The institute will take over the Flint Institute of Technology which has been operated for seven years by the Industrial Mutual Association, but will still be affiliated with the association whose membership is made up of thousands of Flint factory employees. Major Albert Soberly, director of the Flint Institute, will be in charge of the new General Motors College.

Ground will be broken at once for the first unit of the institute. The first building will be three stories and will provide 65,000 sq. ft. of floor space and will cost \$420,000. Instruction in all the technical phases of the automobile industry will be available to all the employees in the Flint factories besides those in General Motors units in Detroit, Lansing, Pontiac and other centers, according to Mr. Bassett. Educational and training work of the corporation will be largely centralized through the institute. The new building will be ready early in the coming school year. The faculty will be greatly augmented to take care of the new work. Both full time and part time courses will be offered.

Radio Retailers Talk Sales

SPRINGFIELD, Mass., July 19.—Between 50 and 60 radio retailers of Western New England attended a demonstration and sales conference for the new American Bosch radio line, conducted at Hotel Kimball recently, under the auspices of the Plymouth Motor Service Co. H. A. Wilson, general manager of the service company, presided and opened the conference, and talks were given by A. H. Bartsch, Roy Davey and L. F. Curtis, respectively sales manager, advertising manager and chief engineer for the Bosch company.

Crude Rubber Imports

NEW YORK, July 19.—Crude rubber imports in the United States during June totaled 30,107 long tons against 30,337 long tons in June, 1925, according to the Rubber Association of America, Inc.

Total imports for the first six months of the current year were 208,637 tons, compared with 180,787 tons in the corresponding period a year ago.

Many Changes Along Row Feature Boston Season

William C. Sill Sells Chevrolet Business to Factory and Retires

BOSTON, July 19.—Mid-season is bringing its changes this year, the same things as happen about this time every year. William C. Sills, who started at the bottom in Boston years ago, became one of the high executives of General Motors and then took over all New England as distributor for Chevrolet, retires August 1 a millionaire. The Chevrolet Motor Company is about to take over the Sills-Chevrolet Company, with all its organization, and will reorganize it by cutting up the territory in various ways.

The Connell & McKone Company, New England distributor for the Gardner Motor Car Company, with salesrooms on Newberry St., has given up the line. It is being handled at retail by the Frank P. Anthony Company, and another dealer may be put into the territory. The factory will establish headquarters temporarily in Mr. Anthony's salesrooms on Brighton Ave. Weldon McKone of the company is going to Quincy to take charge of the W. J. Connell Company there.

The Bryant G. Smith & Sons Company, formerly Cole distributor, and for the last year or more retail agent for the Marmon and Hupmobile, has given up the lines and the firm will discontinue handling motor cars. It is offering the building for sale, and Bryant G. Smith and his son, Conrad Smith, will go into some other business.

Otto A. Lawton, for years the distributor for the Franklin line in Boston has made enough money to entitle him to retire, he feels, and he has negotiated with some Bostonians to take over the business.

The Haskell-Bouchard Company, original distributor of the Rollin, and now retail agents for Paige and Jewett, also the Elcar, has become distributor for the Absopure line of the General Necessities Company of Detroit.

Harry L. Paul has been appointed wholesale sales manager for the New England Velie Company. He had been formerly with the Hudson and Studebaker companies in the engineering and sales departments.

Plan \$850,000 Building

CLEVELAND, July 19.—The Motors Realty Company, composed of the interests controlling the Ohio-Buick Company, and headed by G. G. G. Peckham, distributor, has awarded contract for an \$850,000 automobile sales and service building to be erected at Euclid Ave. and East 24th St.

The building will have four stories and

Sees Car to Family in Next 4 Years

CINCINNATI, July 21.—By 1930 there will be one automobile in the United States to every three and one-half persons or an average of one to every family, Henry Meyers, director of the sales force of the Chrysler Motor Corporation predicted in an address at a dinner meeting here.

The dinner was given in honor of members of the local Chrysler organization by James Hanley who has taken over an important Chrysler agency.

"In predicting the future of the industry it is not preposterous to say that 18,000,000 automobiles will be in use by 1930 when we consider the rapid growth of the business to the present time," said Mr. Meyers.

a basement, 315 by 136 feet and will be of reinforced concrete with sand stone facing. Ramps will lead to all floors, the basement and the roof. The basement will be fitted for a public garage. On the first floor will be a large automobile sales room and the parts department.

Sales and service space will occupy the second floor, general offices will be on the third floor and departments for repairs and car storage as well as restaurant will be on the top floor.

New Agency Corporation

MILWAUKEE, July 17.—George W. Browne, Inc., Milwaukee, is a new corporation which has taken over the Chrysler franchise for the Wisconsin territory from the Clark Motor Co., Milwaukee. George W. Browne, president and principal owner of the new corporation, has been general manager of the Clark company for about two years, and the transfer is largely nominal. Mr. Browne has been in the automotive merchandising business for 28 years, of which 17 years were devoted to the wholesaling and retailing of Overland and Willys-Knight cars in the Wisconsin territory. He was one of the founders and the first president of the National Automobile Dealers' Association, and is a past president of the Milwaukee Automotive Dealers' Association.

To Build 7-Story Garage

CINCINNATI, July 21.—A new seven story building will be erected on Ninth street here by the Ninth street garage to take care of the increased patronage of the company. The building will be divided into an east and west division, with the western part elevated above the eastern. Waiting rooms, elevators and other conveniences will be features of the new building. The garage is to be the "Show Garage" of Cincinnati.

Flint to Be Produced at Durant's Elizabeth Plant

Colin Campbell, Star Division Chief, Will Have Charge Of Operations

NEW YORK, July 21.—Following the approval by stockholders of the Flint Motor Co. of the sale of the Flint plant to General Motors Corp. for \$3,750,000, it was announced that beginning September 1 the Flint car would be produced at the Elizabeth, N. J., plant of the Durant Motor Co. of New Jersey. All the present Flint models are to be manufactured at Elizabeth.

It was also made known that Colin Campbell, vice-president of Durant Motors, Inc., who has been directing the policies of the Star Division, will similarly direct the Flint operations. Included in the sale of the Flint plant are the buildings, real estate and some machinery.

The Elizabeth plant contains 2,100,000 feet of floor space, was built at a cost of \$13,000,000 and acquired by Durant interest for less than one-half of its original cost, and is said to be the largest automobile plant under one roof in the world.

New Chrysler Distributor

CINCINNATI, July 21.—A change in the Cincinnati agency distributing Chrysler cars was announced here when J. I. Handley, well known auto figure, took charge of the Robert Sloan Motor Car Company. All of the outstanding stock of the Sloan company has been taken over by Mr. Handley. The name of the company will be changed shortly. The buildings and departmental organization of the Sloan company will be kept intact for the present until the policy of the new company is announced.

Chevrolet Leads in Spokane

SPOKANE, Wash., July 19.—Chevrolet leads the June new car sales for Spokane county with 87 new license applications, according to figures compiled by the Washington Automotive Trades association. Ford sales rank second with 80 while Star is third with 40, in the four cylinder class.

In the six-cylinder class the Essex leads the field with thirty-six, Nash second with 30 and Buick third with 27.

Dealer for Nash

CINCINNATI, July 21.—W. C. Weathers, formerly sales manager of the Cincinnati Gahagen Company has taken over the Nash dealership at 2417 Gilbert Avenue and will establish a new company to be known as the Weathers-Nash Company. A service department as well as a retail department will be established at the company's new building.

Officials Map Path of Second Airplane Tour

Itinerary Includes Many of Principal Lake and Mid- dle West Cities

DETROIT, July 19.—The pathfinding trip of the second annual Commercial Airplane Reliability tour is now under way.

H. G. McCarroll, tour manager; Capt. Ray Collins, traveling referee; J. Peterson Adams of the publicity department of the Paige-Detroit Motor Car Co.; Charles E. Planck, aviation editor of the Detroit Free Press; Harold J. Wymer, aviation editor of The Detroit News, and Frank E. Bogart, aviation editor of The Detroit Times, have left here in a Douglas Transport plane on a trip which will take them to 15 cities, 13 of which will probably be designated as stops for the reliability tour, which starts August 7.

The plane was assigned to the tour committee by Gen. Mason M. Patrick, chief of the air service. It was sent to Selfridge Field, where orders for its flight were given by Major Thomas G. Lanphier, commanding officer at the field. The party expects to return to Detroit July 21.

From Detroit the party was to fly to Kalamazoo, and, after a two-hour conference with Kalamazoo aviation enthusiasts, was to fly to Chicago. Leaving Chicago, the party planned to fly to Milwaukee, where the plane was scheduled to give some demonstrations in connection with the city's "Neptune's Pageant."

Wednesday the party was to fly from Milwaukee to St. Paul, with a possible stop at LaCrosse, Wis., for gasoline and oil. There was to be a noon meeting at St. Paul and the party was to remain over night there, arranging details for the arrival of the air tourists, next month, and a great gathering of aviation enthusiasts from various northwestern points as far as Billings, Mont.

The rest of the itinerary was to include Des Moines, Lincoln, Neb.; Wichita, Kan.; Kansas City, St. Joseph, Mo.; Moline, Ill.; Indianapolis; Cincinnati, Ohio; Fort Wayne and Cleveland.

Smith Joins Armacoast

INDIANAPOLIS, July 19.—Lon R. Smith, well known Indiana automotive executive, has become affiliated with the Armacoast Automobile Company, Indianapolis distributor of Studebaker, as vice-president and director of sales. This company has two retail sales department and offices in the city and an extensive wholesale distribution of Studebaker commercial cars in about forty counties of the state. Mr. Smith will continue the two retail sales managers, Mr. R. R. Shaw and H. A. Schmidt, who have been in charge of the two retail sales depart-

ments, and will also supervise the wholesale end of the business. The Armacoast Company took over the Studebaker branch in the early part of the year and has made a fine record in local and wholesale work so far.

New Packard Service Branch

DETROIT, July 19.—A new service station has been opened by the Packard Motor Car Co., in connection with its factory branch on Woodward Ave. Heretofore all Packard service work in the city has been handled at the factory branch on Jefferson Ave. The new service station has been opened with the idea of servicing Packard cars owned in the northern part of the city, eliminating the necessity on the part of car owners to make a long trip across town to the original service station. The original station, however, is being continued.

Tax Hearings Dropped

WASHINGTON, July 19.—The probability that the automobile and other industries, interested in taxation reduction, would get a hearing this summer before the joint congressional committee on internal revenue taxation, was dissipated here this week with the announcement by Chairman W. R. Green that no hearings will be held until Congress reconvenes in December.

Aviator Is Fined

HARTFORD, Conn., July 19.—Judge Nathan A. Shatz of the Hartford police court admitted he was up in the air himself when called upon to decide the case of an aviator who had failed to have his plane inspected, registered and himself duly licensed. After reading over the state law on the control of airplanes the judge imposed a fine of \$25 each on two counts, failure to have a license and have the plane registered. This is the first case that has come to light in Hartford county. The commissioner of aviation is said to have made the complaint which resulted in the arrest and fine of the aviator, who is said to have carried passengers between Connecticut and Rhode Island.

Connecticut Titles Up

HARTFORD, Conn., July 19.—Receipts of the state motor vehicle department for the fiscal year ending June 30, exclusive of the gasoline tax, totaled \$6,162,179.43, a 10 per cent increase over the previous fiscal year. Of the total for the year just closed \$4,771,069.50 was derived from fees for the registration of 276,883 motor vehicles of all kind. The registration total is in excess of that of the previous year by 25,166 vehicles, not counting the municipal registrations which numbered 1,371. The second largest item of income, according to the motor vehicle department report, was \$880,455 receipts from the licensing of 290,792 drivers. This covers all classes and shows an increase of 26,925 operators.

Firestone Blames Market Speculators for Gouging

Declares Most Plantation Owners Would Rather See Prices As They Are

AKRON, July 19.—"Speculators, instead of the growers, get the big profits, when the price of rubber is pushed to exorbitant levels through unwarranted restriction," declared Harvey S. Firestone, Jr., of the Firestone Tire & Rubber Co., on his return to Akron after a six months' trip through the Far East.

"Most of the plantation owners would like to see rubber prices remain at present levels around 42 cents a pound or a little higher. When rubber was selling above \$1 a pound last year, they actually obtained little more than 50 cents a pound for their product.

"The evil effect of extortionate rubber prices in crippling the rubber manufacturing industry, both in this country and abroad, has apparently had its effect. Even at present prices there is a big profit in growing rubber."

Mr. Firestone sailed last January for Japan. His itinerary took him through Japan, China, the Philippines, the Malay Peninsula, Java, Sumatra and Borneo.

Although he did not visit Liberia, Mr. Firestone said the Firestone rubber growing project there is proceeding satisfactorily. The company has 1,000,000 acres of land under lease in that country, besides a small plantation in operation.

June Record Broken

SPRINGFIELD, Mass., July 19.—Sales by members of the Springfield Automotive Dealers' Association last month broke all June records, and the sales of new and used cars combined during the month exceeded those of June, 1925, by nearly 50 per cent, according to reports turned in to the secretary, Harry W. Stacy. The greatest gains were scored for dealers handling low-priced or medium-priced cars, and price reductions played quite a part in sales stimulation. One salesman for a house handling a medium-priced car made a record of 18 sales in 18 consecutive days.

Delaware Registrations

WILMINGTON, Del., July 19.—Forty thousand and twenty-five motor cars were registered in Delaware during the first six months of 1926, according to a statement issued from the office of Secretary of State S. D. Townsend at Dover. Of this number 32,625 were passenger cars and 7,400 trucks, buses, etc. There were also registered 150 trailers, 278 tractors and 273 motorcycles. The collections of the motor car department for the six months aggregated \$702,739.57, of which \$543,786 was from motor car registration and \$174,774 from gasoline tax.

TRADE ASSOCIATION ACTIVITIES

INTERSTATE RELATIONS AIDED

Baltimore Group Helps Iron Out Trouble Between Officials

BALTIMORE, July 19.—The Baltimore Automobile Trade Association, Inc., is taking a leading part in an effort to iron out difficulties that have arisen between the state officials of Maryland and Delaware. Recently the Delaware authorities placed a ban on motor trucks and passenger vehicles licensed only in Maryland that are operated for hire. As these vehicles reached the Delaware line they were refused admission to the state unless provided with registration in that state.

The Baltimore trade organization called a meeting recently to discuss the subject. It was attended by trade officials, state authorities and representatives of trucking concerns. In the meantime, however, E. Austin Baughman of the Maryland state motor vehicle commission, had been in correspondence with the Delaware authorities.

He was notified by the secretary of state for Delaware that the opinion was given by the attorney for the state highway department and concurred in by the attorney-general of Delaware. Under these conditions the authorities in charge of enforcing the motor vehicle laws of the state had no alternative, it was stated. Mr. Baughman plans to place the subject in the hands of the Maryland attorney-general for a ruling.

Retiring President Honored

LOUISVILLE, July 19. — William Mohlenkamp, retiring president of the Louisville Tire and Accessory Dealers' Association was recently honored with a dinner at Bauer's Park. More than 100 tire and accessory dealers paid tribute to Mr. Mohlenkamp who was instrumental in forming the organization early in 1925 and was its first president. His successor, R. D. Heman, was elected last month. But one man was permitted to speak at the dinner, that being the retiring president, who called attention to the higher plane on which the tire and accessory business of Louisville is being conducted since the organization has brought the dealers together. The credit rating bureau, maintained by the association has saved the members thousands of dollars, he said.

N. S. P. A. to Use Arbitration

DETROIT, July 19.—In order to establish an arbitration tribunal which will provide effective facilities for the amicable adjustment of all business controversies in which its members may become involved, the National Standard Parts Association has appointed an arbitration committee consisting of the following:

Jobbers—John R. Stanley, Stanley-Brandt Co., Alexandria, La.; E. A. Henderson, Henderson Bros., Sacramento, Cal.; L. T. White, Motor Bearings & Parts Co., Raleigh, N. C.; W. H. H. Childs, P. D. Q. Company, Philadelphia; F. H. Carlisle, Replacement Parts Co., Boston, Mass.; L. H. Ward, Buffalo Bearings Co., Buffalo, N. Y.

Manufacturers—W. B. Huber, W. B. Huber & Co., Los Angeles; B. R. Win-

born, Detroit Steel Products Co., Detroit; F. J. Glennon, Kant Skore Piston Company, Cincinnati; L. A. Dall, Dall Motor Parts Co., Cleveland; S. M. Prior, Fafnir Bearing Co., New Britain, Conn.; E. A. Ewing, Ochrome Valve Co., Baltimore.

Plan Membership Drive

LOUISVILLE, July 19.—The Kentucky Automotive Trade Association will shortly stage a membership drive, according to J. Garland Lea, secretary. Officials will endeavor to sign up all Kentucky firms engaged in any branch of the automotive business which are not at present affiliated with the automotive trade body. During the 1926 session of the Kentucky legislature the state organization, working with the Louisville Automobile Dealers Association, succeeded in defeating several bills held to be detrimental to the industry. After the membership drive the legislative committee will begin the preparation of a series of bills to be presented in the next session of the general assembly.

Yeoman Resigns Post

DETROIT, July 19.—E. W. Yeoman, who was largely responsible for the organization of the National Automotive Parts Association, and who served as its first president, has resigned as chairman of the board. When Yeoman retired as president of the association, early in the year, he was named chairman of the board, in which position he has acted largely in an advisory capacity. The new officers are now well established in their work, he said, and for this reason he is giving up the post. Previous to his connection with the N. A. P. A., Yeoman was connected with the Continental Motor Corp. for a number of years. He resigned as vice-president of the corporation to organize the N. A. P. A.

Carolina Dealers Organize

RALEIGH, N. C., July 19.—The North Carolina Automotive Trade Association, Inc., non-stock corporation has been chartered. This new organization is designed to take the place of the Carolinas Automotive Trade Association, an organization which has functioned for several years. Incorporators of the new organization are Hoke Baggs, of Winston-Salem, Coleman W. Roberts of Greensboro, and C. G. Mutart of Raleigh. Henry W. Maston of Winston-Salem, is president of the association at present, and Coleman W. Roberts is secretary and treasurer. Aims of the association are co-operation for the legitimate interests of the dealers and through such co-operation to solve problems connected with their work.

Louisville Plans Show

LOUISVILLE, July 19.—February 14 to 19, inclusive, has been set as the dates for the 1927 automobile show by directors of the Louisville Automobile Dealers' Association. Plans are now being made with a view to making the 1927 exceed any of the previous eighteen exhibitions. J. Garland Lea, secretary-manager of the association will manage the show which is to be staged in the Jefferson County armory.

ALABAMA TRADESMEN MEET

Highway Report Will Be Feature of Summer Meeting

BIRMINGHAM, Ala., July 17.—Plans for the midsummer meeting of the Alabama Automotive Trades Association to be held in Birmingham July 19 have been about completed. The meeting was originally scheduled to be held in Dothan but was changed to Birmingham as a more central gathering point.

A feature of the meeting will be the submission to the association of the report of H. E. Breed, consulting highway engineer employed by the association to make an impartial fact-finding survey of the Alabama highway system.

Another feature of the meeting will be the report of the tax survey now being made by the association to determine the part being played by the automobile in the state's taxes and still another will be the report on highway financing to be made by Lee Bidgood of the school of business administration of the University of Alabama.

All automobile men in the state, whether they are members or not are invited to attend the meeting, which will be held at the Tutwiler Hotel in the morning and the Southern Club in the afternoon.

A. S. S. T. Meeting Planned

NEW YORK, July 19.—All available exhibit space on the Municipal Pier, Chicago, has been reserved for the eighth national steel and machine tool exposition to be held the week of September 20, in connection with the convention of the American Society for Steel Treating.

Technical sessions will be held at the Drake Hotel, which is convention headquarters.

An outline of the meetings has been prepared by the national meetings and papers committee, composed of Earl Smith of Central Steel Co., chairman; H. M. Williams, Delco-Light Co.; J. H. Nead, American Rolling Mills; and Ray T. Bayless, editor of Transactions of A. S. S. T., secretary.

Used Car Stocks Heavy

LOUISVILLE, July 19.—Members of the Louisville Automobile Dealers' Association had on hand July 1 \$228,974 worth of used cars, according to a report from the association. A decrease of \$39,000 is shown compared with stocks on hand June 1. Sales of used cars during June totaled \$100,124, as compared with \$120,227 in May.

Boston Wants N. T. D. A. Meeting

BOSTON, July 19.—At a meeting of the Boston Tire Dealers Association here this week a committee was appointed to see if it would be possible to have the National Tire Dealers' Association come to Boston next year for its annual convention. He said the time to make plans was now before the 1926 convention had met and discussed a place and date. Boston will be represented at the convention this year by President Charles T. Feigen and some of the other officers. At the meeting the operation of the new credit information bureau and tire clearing house was explained.

Committee to Hear Fight For Tax Repeal Is Named

Six Republicans and Four Democrats Will Pass on Further Reductions

WASHINGTON, July 19.—The personnel of the joint Congressional committee on internal revenue taxation, which will be the body before which the automotive industry must wage its final fight for the repeal of the remaining 3 per cent excise tax on passenger cars, was named this week, with the selection of Rep. Wm. R. Green of Iowa, as chairman. The full committee is as follows: Rep. Willis C. Hawley, vice chairman; Allen T. Treadway, John N. Garner, James W. Collier, House members; Senators Reed Smoot, J. Watson, David A. Reed, F. M. Simmons, and A. A. Jones.

The committee, as named, consists of six Republicans and four Democrats and is an "Administration" committee, both as to political ties and from past records in the previous fight for complete repeal of all automotive taxation by the Federal government.

It is problematical whether or not there will be any taxation legislation at the December session of Congress, although the committee is vested with authority to make any recommendations it may see fit and must make a complete report by December 31, 1927, as to the entire excise tax structure.

At the present time there are approximately a dozen bills which "died on the calendar" with the expiration of the present session, which called for the complete repeal of the remaining 3 per cent automotive tax. These measures, to be given consideration, must be reintroduced at the next session, and when reintroduced will go to the above named committee for hearings before they can be considered by the House and Senate.

Tax Produces \$12,667,504

COLUMBUS, O., July 19.—The two-cent gasoline tax in Ohio produced \$12,667,504.49, during the fiscal year ending June 30, according to a statement of Joseph T. Tracy, auditor of state. Of that amount \$6,276,466 was returned to counties and municipalities for road maintenance and the remainder, amounting to \$5,600,401 was transferred to the maintenance and repair fund for the maintenance and repair of state highways. The state highway building fund at the close of the fiscal year was \$1,454,032 as compared with \$2,431,603 at the beginning of the fiscal year. Disbursements from the fund totaled \$7,061,213 and credits to the fund totaled \$6,333,642.

White Joins Burd

ROCKFORD, Ill., July 19.—Frank M. White, sales manager of the Emerson-Brantingham Company the last seven years, has been appointed sales manager

Coming Motor Events

Automobile Shows

1927 NATIONAL SHOWS

New York.....Jan. 8-15
Chicago.....Jan. 29-Feb. 5

Boston, Mass.....March 5-12
Mechanics Bldg.
Boston, Mass.....Sept. 27-Oct. 2
Radio Exposition, Mechanics' Bldg.
Chicago.....Nov. 8-13
Show and convention, Automotive Equipment Ass'n, Coliseum.
Chicago.....Nov. 15-19
Show and convention of the National Standard Parts Ass'n. Hotel Sherman.
Chicago.....Sept. 27-Oct. 2
National Radio Exposition.
Dallas, Tex.....Oct. 9-24
Automobile Bldg.
Denver, Colo.....Aug. 3-6
Automobile Show, Civic Center.
New York.....Sept. 13-18
Madison Square Garden, Radio World's Fair.

COMING FEATURE ISSUE OF CHILTON CLASS JOURNAL PUBLICATIONS

September 30—Automotive Industries—Annual Production Issue

San Francisco.....Aug. 21-28
Pacific Radio Exposition, Exposition Auditorium.
St. Louis.....Sept. 4-19
Industrial Exposition, Forest Park.

Races

Altoona, Pennsylvania.....Sept. 6
Atlantic City, N. J.....July 17
Atlantic City, N. J.....Sept. 25
Charlotte, N. C.....Aug. 23
Dallas, Texas.....Nov. 11
Los Angeles, Cal.....Nov. 25
Salem, New Hampshire.....Oct. 12

Conventions

Automotive Equipment Association, Coliseum, Chicago.....Nov. 8-13
National Association of Automobile Show & Association Managers, Drake Hotel, Chicago.....July 27-28
National Standard Parts Association, Hotel Sherman, Chicago.....Nov. 15-19
National Tire Dealers Association, Inc., Memphis, Tenn.....Nov. 16-18
North Carolina Automotive Trade Association, Wrightsville Beach, N. C.....Aug. 9-10
Society of Automotive Engineers, Transportation and Service Meeting, Boston, Mass.....Nov. 16-18

for the Burd High Compression Ring Company. Mr. White is a former president of the American Society of Agricultural Engineers and was chairman of the sales managers' division of the National Farm Equipment Association during the years he served with the E-B concern.

Fiat Bonds Offered Here

NEW YORK, July 19.—What is believed to be the first public financing plan in the United States of a foreign automobile manufacturer was the floating this week of \$10,000,000 of Fiat Co. 20-year, sinking fund, 7 per cent, debenture bonds by a syndicate of American bankers headed by J. P. Morgan Co. As the Morgan interests are bankers for General Motors Corp., there were rumors current in Wall Street that the offering implied some form of alliance between G. M. and Fiat but the reports were authoritatively denied. The purpose of the issue is to supply funds for expansion of the Lingotto Works, chiefly in connection with the production of a new car selling for the equivalent of \$635, for reimbursement of the treasury for similar expenditures already made and to provide the company with additional working capital.

Air Contracts Awarded

DETROIT, July 19.—According to word received here from Washington, the Packard Motor Car Co. will manufacture 46 motors and spare parts for the Navy at a cost of \$645,000. The Chance Vought Corp., of Long Island City, New York, was awarded contract for \$259,708 for 20 combined pursuit and spotting aircraft. To the Loening Aeronautical

Engineering Corp., of New York City, was awarded contract for 27 airplanes of three-seater speeder amphibian type to cost \$568,000 and spare parts totaling \$131,000. The Wright Aeronautical Corp., of Paterson, N. J., will make 11 motors and parts costing \$64,442.

G. M. Branch Completed

ST. LOUIS, July 19.—The General Motors Truck Co. branch at 2640-44 Washington boulevard, has just been completed. It fronts 95 feet on Washington. The service department is cared for in a room 80 feet by 275 feet without a post. In this room is a full equipped machine shop with all necessary tools to service all sizes of trucks and motor coaches. A large air compressor in the basement supplies air for washing, air hammer, tire inflation and other purposes. A complete stock of parts is carried for GMC trucks, Yellow coaches and Yellow-Knight trucks.

Northeast Dealers Meet

ST. LOUIS, July 19.—Factory officials, dealers and distributors from Missouri, Illinois and Iowa, handling the recently introduced motor horn, the Northeast, attended the sales conference of the Northeast Electric Co., of Rochester, N. Y., which was held last week at Hotel Statler. Warren K. Lee, sales manager and L. P. Michaud, Chicago district manager, were the factory officials present. They brought with them horn stands for exhibiting the Northeast and window display material. A new Northeast horn model, the Commodore, was announced at the dinner which concluded the conference.

Prices and Weights of Current Passenger Car Models

SHIP WT. PASS. BODY STYLE. PRICE	SHIP WT. PASS. BODY STYLE. PRICE	SHIP WT. PASS. BODY STYLE. PRICE	SHIP WT. PASS. BODY STYLE. PRICE
AUBURN "4-44"	CHRYSLER (Continued)	ELCAR	JEWETT
..... 5-p Touring \$1,145	3060 5-p Sedan 1,545	2560 5-p Touring \$1,095	3355 2-4-p Roadster 2,045
..... 5-p Roadster 1,145	2935 4-p Royal Coupe 1,695	..... 4-p Roadster 1,295	3465 2-4-p Coupe 2,345
..... 5-p Sedan 1,195	2995 5-p Brougham 1,745	2900 5-p Coach 1,195	3545 5-p Sedan 2,345
..... 5-p Sedan 1,195	3090 5-p Crown Sedan 1,895	2779 3-p Coupe 1,295	3580 5-p Berline 2,445
..... 5-p Sedan 1,195	..... 5-p Sedan 1,895	..... 5-p Sedan 1,395	
"6-66"	"80"	"6-65"	
2850 4-p Sport-Roadster 1,395	..... 5-p Phaeton 2,545	..... 5-p Touring 1,295	
2860 6-p Touring 1,395	3775 5-p Phaeton 2,545	..... 4-p Roadster 1,495	
..... 3-p Coupe 1,445	3730 2-4-p Roadster 2,595	2779 5-p Coach 1,395	
3020 5-p Brougham 1,495	4105 5-p Sedan 3,095	..... 3-p Coupe 1,495	
3070 5-p Sedan 1,695	..... 4-p Coupe 2,895	2900 5-p Sedan 1,595	
3070 5-p Wanderer 1,745	..... 4-p Coupe 2,895		
..... 5-p Sedan 1,745	4225 7-p Sedan 3,195		
"8-88"	4260 7-p Sedan Lim. 3,595		
(129 in. W. B.)	*Overall length.		
3180 4-p Sport-Roadster 1,695	CLEVELAND "31"		
3200 6-p Touring 1,695	2415 5-p Touring \$945		
..... 3-p Coupe 1,745	2565 5-p Touring DeLuxe 1,025		
3380 5-p Brougham 1,795	2520 3-p Coupe 1,035		
3450 5-p Sedan 1,995	2695 5-p Sedan 1,090		
3450 5-p Sedan 1,995	..... 5-p Sedan 1,090		
..... 5-p Sedan 2,045	"43"		
(146 in. W. B.)	2800 5-p Touring 1,145		
..... 7-p Sedan 2,495	2975 5-p Sp. Touring 1,295		
BUICK Standard "6"	2915 3-p Coupe 1,225		
2845 2-p Roadster \$1,125	3145 5-p Sedan 1,345		
2955 5-p Roadster 1,150			
3020 2-p Coupe 1,195	CUNNINGHAM		
3150 5-p 2 d. Sedan 1,195	4500 4-p Sp. Touring \$6,150		
3110 4-p Coupe 1,275	4600 7-p Touring 6,650		
3230 5-p 4 d. Sedan 1,295	4700 4-p Coupe 7,600		
..... 5-p 4 d. Sedan 1,295	5000 6-p Limousine 8,100		
"Master"	DAGMAR		
(120 in. W. B.)	3750 4-p Roadster \$3,500		
3350 2-p Roadster 1,250	3800 4-p Sp. Tourer 3,500		
3515 5-p Touring 1,295	3700 4-p Phaeton 3,500		
3670 5-p 2 d. Sedan 1,395	4200 4-p Petite Coupe 4,500		
3765 5-p Sedan 1,495	4200 4-p Petite Sedan 4,500		
..... 5-p Sedan 1,495	4500 4-p De Luxe Coupe 4,750		
(128 in. W. B.)	4700 5-p Sedan 4,700		
3570 4-p Sp. Roadster 1,495	4800 7-p Sedan 4,750		
3635 5-p Sp. Touring 1,525	..... 5-p Sedan 4,750		
3805 3-p Country Club 1,795	3150 5-p Touring 1,785		
3855 4-p Coupe 1,795	3100 2-p Roadster 1,985		
3940 5-p Brougham Sedan 1,925	3200 4-p Sp. Touring 1,985		
4025 7-p Sedan 1,995	3500 5-p Sedan 2,445		
CADILLAC	DAVIS		
"314" Standard Line	2915 5-p Legion. Tour. 1,495		
(132 in. W. B.)	3000 5-p Sedan 1,595		
4110 5-p Brougham \$2,995	3060 5-p Imperial Sedan 1,795		
4125 4-p Victoria 3,095	..... 5-p Sedan 1,795		
4040 2-p Coupe 3,045	2325 5-p Touring \$1,285		
4210 5-p Sedan 3,195	2500 5-p Sedan 1,285		
4315 7-p Sedan 3,295	2450 3-p Coupe 1,285		
4380 7-p Imperial 3,435	..... 5-p Coupe 1,285		
Custom Built	DIANA "St. 8"		
(132 in.)	2995 5-p Roadster \$1,795		
4065 2-p Roadster \$3,250	2995 5-p Palm Beach 1,995		
..... 2-p Roadster \$3,250	3170 5-p DeL. Brougham 1,995		
(138 in. W. B.)	3275 5-p De Luxe Sedan 2,195		
4125 7-p Touring 3,250	3160 5-p Cabriolet 2,095		
4100 5-p Phaeton 3,250	3640 7-p Sedan (135 in. W. B.) 2,695		
4300 5-p Coupe 4,000	..... 5-p Berline Sedan 2,895		
4300 5-p Sedan 4,150	..... 5-p Town Car.		
4400 7-p Suburban 4,285	DODGE BROTHERS		
4450 7-p Imperial 4,485	2448 2-p Roadster \$ 795		
CASE	2538 2-p Special Roadster 845		
J. I. C.	2567 5-p Touring 795		
3260 3-p Roadster \$1,840	2642 5-p Spec. Touring 845		
3290 5-p Touring 1,885	2497 2-p Sport Roadster 880		
3470 5-p Sp. Touring 2,160	2617 4-p Sport Touring 880		
3640 5-p Sedan 2,590	2589 2-p Coupe 845		
3650 5-p Brougham 2,590	2632 2-p Spec. Coupe 895		
..... 5-p Brougham 2,590	2811 5-p Sedan 895		
"V"	2883 5-p Spec. Sed. 945		
3950 7-p Touring 2,225	2920 5-p DeL. Sedan 1,075		
4320 7-p Sedan 2,975	..... 5-p Sedan 1,075		
CHANDLER "35"	DUESENBERG		
3090 2-p Roadster \$1,695	Straight "S"		
3085 5-p Sport Touring 1,545	3920 2-p Roadster ↑		
3223 7-p Touring 1,645	3970 4-p Roadster ↑		
3498 5-p 20th C'y Sedan 1,590	3700 5-p Phaeton ↑		
3309 5-p Brougham 1,695	3980 4-p Sp. Phaeton ↑		
3525 5-p Met. Sedan 1,895	4115 5-p Sedan ↑		
3594 7-p Sedan 1,995	4500 7-p Sedan ↑		
3594 7-p Berline 2,095	..... 7-p Sedan ↑		
CHEVROLET "X"	↑Manufacturers do not quote list prices.		
1780 2-p Roadster \$510	DU PONT		
1875 5-p Touring 610	"D"		
2030 2-p Utility Coupe 645	3300 2-p Roadster \$2,600		
2130 5-p Coach 645	3550 5-p Touring 2,600		
2215 5-p Sedan 735	3800 7-p Touring 2,750		
2215 5-p Landau Sedan 765	3550 5-p Touring Sedan 3,400		
CHRYSLER	DURANT		
"60"	A-22		
2575 5-p Touring \$1,075	2300 5-p Touring \$ 730		
2545 2-p Roadster 1,145	2380 5-p Spec. Touring 805		
..... 2-p Coupe 1,165	2450 4-p Coupe 825		
2780 5-p Coach 1,195	2480 4-p Spec. Coupe 875		
2840 5-p Sedan 1,295	2650 5-p Sedan 880		
..... 5-p Sedan 1,295	2710 5-p Spec. Sedan 995		
"70"			
2805 4-p Roadster \$1,525			
2785 5-p Phaeton 1,395			
2895 5-p Coach 1,395			

Prices and Weights of Current Passenger Car Models

SHIP WT. PASS. BODY STYLE. PRICE MCFARLAN "6"				SHIP WT. PASS. BODY STYLE. PRICE OVERLAND				SHIP WT. PASS. BODY STYLE. PRICE REVERE				SHIP WT. PASS. BODY STYLE. PRICE STEARNS-KNIGHT (Continued)			
"SV"				"96" 4				"25"				"95"			
3700	2-p	Roadster	\$2,650	-----	2-p	Touring	\$645	3900	2-p	Sp. Roadster	\$2,750	3770	2-p	Roadster	\$2,750
3600	2-p	Spec. Roadster	2,900	2075	5-p	Coupe	735	3975	4-p	Speedster	2,750	3775	4-p	Touring	2,395
3600	5-p	Touring	2,650	-----	5-p	Sedan	735	4050	5-p	Touring	2,750	3785	5-p	Touring	\$2,395
3600	7-p	Touring	2,750	1919	5-p	Touring	\$495	4300	5-p	Sedan	3,800	3895	7-p	Touring	2,495
3850	5-p	Brougham 4d.	\$3,180	2202	5-p	Std. Sedan 2d	595	-----	-----	-----	-----	4035	5-p	Sedan	2,750
3850	4-p	Coupe	3,180	-----	-----	-----	-----	3700	2-p	Roadster	\$3,200	4035	5-p	Brougham	2,750
3850	5-p	Sedan	3,180	2395	5-p	Touring	\$895	3800	4-p	Sportster	3,200	4020	4-p	Coupe	2,750
3850	5-p	Spec. Sedan	3,180	2397	2-p	Coupe	895	3970	5-p	Touring	3,200	4090	5-p	Sport Sedan	3,050
3850	7-p	Sedan	3,280	2443	4-p	Std. Sedan	935	4400	5-p	Sedan	4,000	4200	7-p	Sedan	3,150
3850	5-p	Sub. Sedan	3,380	PACKARD				RICKENBACKER				STUDEBAKER			
3850	7-p	Sub. Sedan	3,480	"6"				"E"				Standard Six			
"TV"				(126 in. W. B.)				"B-8"				(120 in. W. B.)			
4000	2-p	Roadster	\$5,400	3643	4-p	Roadster	\$2,785	3038	5-p	Touring	\$1,750	2700	3-p	Du. Roadster	\$1,125
4600	4-p	Sp. Touring	5,600	3653	5-p	Phaeton	2,585	3068	7-p	Touring	1,795	2765	3-p	Sport Roadster	1,295
4800	4-p	Coupe	6,720	3753	4-p	Coupe	2,585	2953	4-p	Roadster	1,795	2830	5-p	Du. Phaeton	1,145
5200	4-p	Tour. Sedan	6,720	3937	5-p	Sedan	2,585	3116	5-p	Coupe-Sedan	1,495	2875	3-p	Country Club	1,295
5200	7-p	Tour. Sedan	6,810	-----	-----	-----	-----	3202	5-p	Brougham	1,795	2945	5-p	Coach	1,195
-----	6-p	Sedan	6,720	(133 in. W. B.)				3092	4-p	Coupe Roadster	1,920	3115	5-p	Sedan	1,295
-----	7-p	Sedan	6,810	3793	7-p	Touring	\$2,785	3040	4-p	Coupe De Luxe	1,995	-----	5-p	Sedan	1,395
-----	7-p	Spec. Sedan	6,810	4043	7-p	Sedan	2,785	3317	5-p	Sedan	1,995	Special Six			
-----	7-p	Enc. Sedan	7,110	-----	-----	-----	-----	3353	7-p	Sedan	2,195	3380	3-p	Du. Roadster	\$1,395
-----	7-p	Sub. Sedan	7,110	4133	7-p	Club Sedan	2,725	-----	-----	-----	-----	3500	4-p	Sp. Roadster	1,595
-----	7-p	Town Car	9,000	-----	-----	-----	-----	"B-8"				3495	5-p	Du. Phaeton	1,445
"Straight 8"				"8"				3227				3470	5-p	Coach	1,445
-----	2-p	Roadster	\$2,650	(136 in. W. B.)				3315	5-p	Touring	\$2,195	3685	4-p	Victoria	1,750
-----	4-p	Roadster	2,900	4060	4-p	Runabout	\$3,950	3355	7-p	Touring	2,195	3620	5-p	Brougham	1,795
-----	5-p	Touring	2,650	4090	5-p	Phaeton	3,750	-----	4-p	Sup. Sp. Road-	3,250	3875	5-p	Sedan	1,895
-----	7-p	Touring	2,750	4242	4-p	Coupe	4,650	3445	5-p	Coupe Sedan	2,095	Big Six			
-----	5-p	Sedan	3,180	4528	5-p	Sedan	4,750	3486	5-p	Brougham	2,295	(120 in. W. B.)			
-----	5-p	Sub. Sedan	3,380	(143 in. W. B.)				3345	4-p	Coupe Roadster	2,320	3270	3-p	Du. Roadster	\$1,495
-----	7-p	Sedan	3,280	4199	7-p	Touring	\$3,950	3440	4-p	Coupe DeLuxe	2,395	3400	4-p	Sport Roadster	1,645
-----	7-p	Sub. Sedan	3,480	-----	5-p	Club Sedan	4,890	3603	5-p	Sedan	2,495	3405	5-p	Sport Phaeton	1,575
-----	4-p	Coupe	3,180	4655	7-p	Sedan	5,000	3640	7-p	Sedan	2,595	3510	5-p	Club Coupe	1,650
-----	5-p	Coach Broug.	3,180	4710	7-p	Sedan Lim.	5,100	-----	4-p	Sup. Sp. Sedan	5,000	3680	5-p	Sedan	1,895
-----	5-p	Town Car	4,600	PAIGE				ROAMER				(127 in. W. B.)			
MARMON				"6-72"				"6-50-55"				3630	7-p	Du. Phaeton	\$1,775
-----	4-p	Speedster	\$3,295	(125 in. W. B.)				-----	5-p	Spec. Tourer	\$1,295	3910	5-p	Brougham 4d.	2,095
3827	2-p	Speedster	3,295	3500	5-p	Std. Sedan	\$1,495	-----	5-p	Spec. Sp. Tourer	1,395	3945	7-p	Sedan	2,145
3804	5-p	Phaeton	3,295	3615	5-p	Sedan De Luxe	1,670	-----	2-p	Bus. Coupe	1,395	4080	7-p	Berline	2,225
3704	7-p	Touring	3,295	3475	4-p	Cab Roadster	2,295	-----	5-p	Coupe	1,395	STUTZ			
4080	5-p	Std. Brougham	3,295	3740	7-p	Sedan DeLuxe	1,995	-----	5-p	Sedan DeLuxe	1,695	"A-A"			
3983	2-p	Std. Coupe	3,295	3825	7-p	Limousine	2,245	"6-54-E"				(131 in. W. B.)			
3937	4-p	Victoria	3,295	(115 in. W. B.)				-----	4-p	Roadster	\$2,385	4164	2-p	Speedster	\$2,995
4065	5-p	Sedan	3,295	3055	5-p	Brougham	\$1,295	-----	4-p	Tourer	1,985	4175	4-p	Speedster	2,995
4243	7-p	Sedan	3,370	PEERLESS				-----	4-p	Sport	2,285	4390	5-p	Brougham	2,995
4080	5-p	Spec. Broug.	3,395	"6-72"				-----	7-p	Tourer	2,285	4416	5-p	Sedan	2,995
4065	5-p	Spec. Sedan	3,395	(126 1/2 in. W. B.)				-----	3-p	Cabriolet	2,750	4273	4-p	Vic. Coupe	2,995
4243	7-p	Spec. Sedan	3,470	3175	5-p	Touring	\$1,895	-----	5-p	Sedan	2,950	4286	2-p	Coupe	2,995
4031	5-p	Sedan De Luxe	3,775	3425	5-p	Coupe	2,295	"4-75-E"				(145 in. W. B.)			
4175	7-p	Sedan De Luxe	3,850	3500	5-p	Sedan	2,395	"Custom Built"				-----	7-p	Sedan	\$3,685
4100	5-p	Sedan Lim.	3,900	(133 1/2 in. W. B.)				-----	2-p	Speedster	\$3,485	-----	7-p	Sedan Lim.	3,785
4215	7-p	Sedan Lim.	3,975	3275	2-p	Sp. Roadster	\$2,195	-----	3-p	Sport	3,285	VELIE			
MOON				3300	7-p	Sp. Touring	1,995	-----	4-p	Tourer	2,985	"60"			
2600	5-p	Roadster	\$1,395	3700	7-p	Sedan	2,595	"8-88" (138 in. W. B.)				3030	4-p	Sp. Roadster	\$1,495
2600	5-p	Roadster	-----	3825	7-p	Limousine	2,695	-----	4-p	Roadster	\$2,750	3025	5-p	Club Phaeton	1,450
2560	5-p	Touring	1,195	3575	5-p	De Luxe Sedan	2,795	-----	5-p	Sport	2,750	2908	3-p	Coupe	1,450
2720	5-p	Cab. Roadster	1,595	3650	7-p	De Luxe Sedan	2,995	-----	5-p	Tourer	2,495	3175	5-p	Sedan	1,450
2710	5-p	DeL Brougham	1,395	"6-80"				-----	7-p	Tourer	2,585	3340	5-p	Royal Sedan	1,785
2860	5-p	DeL Sedan 4d.	1,545	2800	5-p	Phaeton	\$1,395	-----	2-p	Speedster	2,985	3350	-----	De Luxe Sedan	2,150
LONDON				2895	5-p	Roadster	1,495	-----	5-p	Sedan	1,995	WILLIS SAINT-CLAIRE			
3270	5-p	Sp. Touring	\$1,985	-----	5-p	Coupe Roadster	1,565	-----	3-p	Cabriolet	2,950	"B-68"			
3290	7-p	Touring	1,985	2950	5-p	Sedan	1,495	-----	5-p	Spec Sedan	3,485	3500	7-p	Phaeton	\$2,900
3590	5-p	Petite Sedan	2,540	3140	5-p	Std. Sedan	1,595	-----	7-p	Sedan (136 in. W. B.)	3,285	3520	5-p	Sedan	3,100
NASH				-----	5-p	Sport Sedan	1,795	-----	5-p	Brougham	2,895	3635	7-p	Sedan	3,300
2210	5-p	Touring	\$865	3140	5-p	De Luxe Sedan	1,795	"8-80" (126 in. W. B.)				"C-68"			
2410	5-p	Sedan	995	"8-69"				2950	2-p	Roadster	\$1,895	3350	4-p	Roadster	\$2,900
"Special"				3675	-----	Roadster	\$2,995	3150	2-p	Coupe	1,985	3450	4-p	Gray G. Trav.	2,900
2870	2-p	Roadster	\$1,115	3950	5-p	Sedan	3,495	3580	5-p	Sedan	1,985	3600	5-p	Sedan	3,200
2960	5-p	Touring	1,135	4025	7-p	Sedan	3,595	ROLLS-ROYCE				"D-68"			
2980	4-p	Roadster	1,225	4100	7-p	Ber. Limousine	3,795	Manufacturers do not quote list prices.				3550			
3030	2-p	Business Coupe	1,165	PIERCE-ARROW				STANLEY				3450	4-p	Roadster	3,000
3120	5-p	Sedan 2d.	1,215	"80"				"262"				3625	4-p	Cab. Roadster	3,950
3170	5-p	Sedan	1,315	3245	2-p	Runabout	\$2,895	3600	5-p	Phaeton	\$2,650	3800	5-p	Std. Sedan	3,450
3270	5-p	Sedan 4d.	1,445	3300	4-p	Phaeton	3,095	4000	5-p	Sedan	3,400	3825	7-p	Sedan	3,550
"Advanced"				3425	7-p	Phaeton	2,895	STAR				3820	5-p	Brougham	4,050
(121 in. W. B.)				3470	5-p	Coach 2d.	2,995	1885	5-p	Touring	\$540	3710	5-p	Spec. Sedan	3,450
3390	4-p	Roadster	\$1,475	3525	5-p	Coach 4d.	3,250	1915	2-p	Coupester	610	3875	7-p	Enc. Limousine	3,650
3400	5-p	Touring	1,340	3620	7-p	Coach	3,350	1965	2-p	Coupe	675	"W-6"			
3550	5-p	Sedan 2d.	1,425	3480	5-p	Coupe	3,695	2100	5-p	Coach	695	3650	7-p	Phaeton	\$2,600
"Advanced"				3600	7-p	Sedan	3,995	2257	5-p	Sedan 4d.	795	3410	4-p	Roadster	2,600
(127 in. W. B.)															
3480	7-p	Touring	\$1,490	3655	7-p	Enc. Dr. Lim.	4,045	Standard "6"				3550	4-p	Gray G. Trav.	\$3,000
3640	4-p	Victoria	1,790	3675	7-p	Lim. Coach	3,450	2025	5-p	Touring	725	3450	4-p	Roadster	3,000
3750	5-p	Coupe 4d.	1,990	4350	2-p	Runabout	\$5,250	2160	2-4-p	Sp. Roadster	910	3625	4-p	Cab. Roadster	3,950
3830	7-p	Sedan	2,090	4500	4-p	Touring	5,250	2045	2-p	Coupester	745	3800	5-p	Std. Sedan	3,450
OAKLAND				4590	7-p	Touring	5,250	2100	2-p	Coupe	820	3825	7-p	Sedan	3,550
2600	4-p	Sp. Roadster	1,175	4730	6-p	Coupe Sedan	6,900	2245	5-p	Coach	880	3820	5-p	Brougham	4,050
2500	5-p	Phaeton	1,025	4730	6-p	Coupe Sedan	6,800	2345	5-p	Landau Sedan	975	3710	5-p	Spec. Sedan	3,450
2610	3-p	2d. Sedan	1,095	4850	7-p	Limousine	7,000	1885	5-p	Touring	\$540	3875	7-p	Enc. Limousine	3,650
2765	5-p	Landau Coupe	1,125	4960	7-p	Sedan	7,000	1915	2-p	Coupester	610	3650	7-p	Phaeton	\$2,600
2795	5-p	4d. Sedan	1,195	4750	4-p	Coupe Sedan	6,900	1965	2-p	Coupe	675	3410	4-p	Roadster	2,600
2885	5-p	Landau Sedan	1,295	4850	7-p	Limousine	7,000	2100	5-p	Coach	695	3550	4-p	Gray G. Trav.	2,600
OLDSMOBILE				4730	6-p	Coupe Sedan	6,800	2245	5-p	Coach	880	3680	5-p	Sedan	2,800
2235	5-p	Touring	\$875	4850	7-p	Limousine	7,000	2345	5-p	Landau Sedan	975	3765	5-p	Vogue Sedan	2,900
2445	5-p	DeL. Roadster	975	4730	6-p	Coupe Sedan	6,800	-----	-----	-----	-----	3775	7-p	Sedan	3,000
2445	5-p	DeL. Touring	980	4850	7-p	Limousine	7,000	STEARNS-KNIGHT				3835	7-p	Enc. Limousine	3,085
2460	2-p	Coupe	925	4730	6-p	Coupe Sedan	6,800	"B-4"				"T-6" (127 in. W. B.)			
2460	5-p	Coach	950	4850	7-p	Limousine	7,000								

This list comprises cars distributed on a national basis

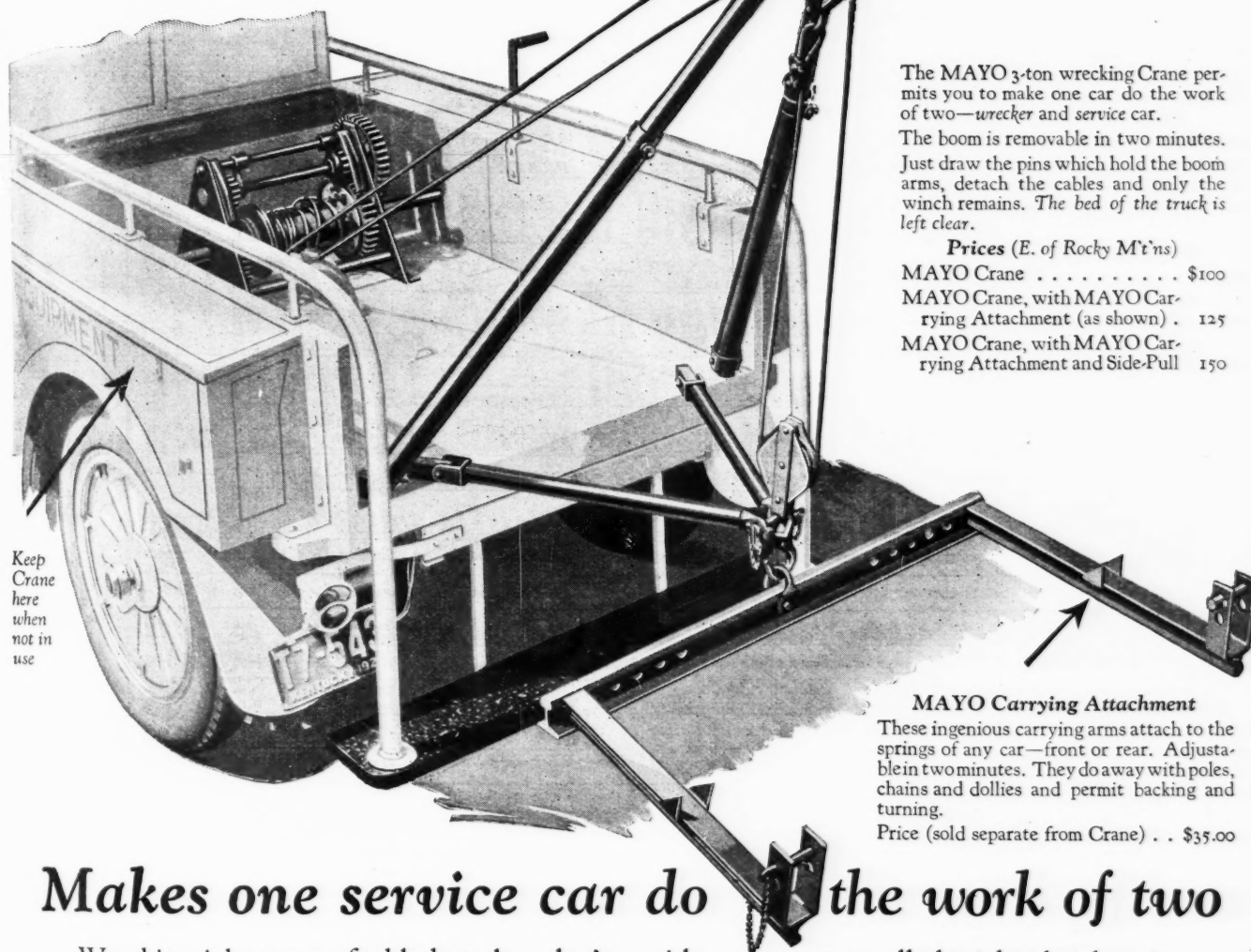
This list comprises cars distributed on a national basis

(Continued on page 48)

MAYO

Will make more profit for you

3 TON DEMOUNTABLE WRECKING CRANE



The MAYO 3-ton wrecking Crane permits you to make one car do the work of two—wrecker and service car.

The boom is removable in two minutes. Just draw the pins which hold the boom arms, detach the cables and only the winch remains. The bed of the truck is left clear.

Prices (E. of Rocky M't'ns)

MAYO Crane	\$100
MAYO Crane, with MAYO Carrying Attachment (as shown)	125
MAYO Crane, with MAYO Carrying Attachment and Side-Pull	150

MAYO Carrying Attachment

These ingenious carrying arms attach to the springs of any car—front or rear. Adjustable in two minutes. They do away with poles, chains and dollies and permit backing and turning.

Price (sold separate from Crane) . . \$35.00

Makes one service car do the work of two

Wrecking jobs are profitable but they don't come in every minute. Make your service car pay its way by making it do double duty. Get a MAYO 3-ton wrecking Crane and you can use your car for wrecking, pick up, delivery and general service work, too.

The MAYO wrecking Crane gives you brute strength and star performance. It will handle

with ease all the jobs that heavier and more expensive equipment can do.

The MAYO Crane is simple, strong, safe and handy. One man can operate it. And the MAYO is priced so reasonably that you can afford it and make money on it. Write today for full information and the name of a near-by jobber who'll demonstrate the MAYO.

Mayo Garage Equipment—a complete line of efficient tools, with many new and superior features

Nationally Distributed by

DAVID LUPTON'S SONS CO.
2631 Woodward Avenue, Detroit
SOLE MANUFACTURERS OF LAPS—
LUPTON AUTO PARTS STORAGE SYSTEMS

The One Crane on the Market That Doesn't Tie Up Your Service Car

Mechanical Specifications of Current Passenger Car Models—Continued

(From page 46)

(This list comprises cars distributed on a national basis)

MAKE AND MODEL										ENGINE										ELECTRICAL SYSTEM				REAR AXLE				BRAKES		Chassis Lubrication—Type and Make		ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS	
Wheel Base (Inches)	Tire Size	Decimals-Balloons	Make and Model	Bore and Stroke	Rated H.P.	Piston Displacement	Valve Arrangement	Camshaft Drive	Piston Material	No. Main Bear.	Dampener ?	Oil Cleaner?	Cooling System	Thermosstat?	Radiators ?	Carburetor	Air Cleaner?	Ignition System	Generator and Starter Make	Clutch—Type and Make	Gear Set—Make	Universal—Type and Make	Type and Make	Gear Ratio	Foot—Type and Location	Hand—Type	4 Wheel Type (* = Optional)	Steering Gear—Make	Rear Springs—Type and Length				
136	34x7 30	32x6 20	Harmon.....74	0-3 1/2x5 1/2	33.8	340	1	He.	Ch.	3	N	Y	Pu.	N	N	Sch.	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Own.	Var.	E-R	I-R	M	0-45	Bowen	A-K—Atwater Kent		
127	32x6 20	32x6 20	Wia.....74	0-3 1/2x5 1/2	27.3	268	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Ray	N	Delco	Delco	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite		
131	32x6 20	32x6 20	McFarlan.....SV	0-3 1/2x5 1/2	33.8	287	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Ray	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
128	32x6 20	32x6 20	McFarlan.....ST. 8	0-3 1/2x5 1/2	33.8	287	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Ray	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
128	32x6 20	32x6 20	McFarlan.....TV	0-3 1/2x5 1/2	33.8	287	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Ray	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
128	32x6 20	32x6 20	McFarlan.....London	0-3 1/2x5 1/2	33.8	287	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Ray	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
113	30x5 25	30x4 75	McFarlan.....Series A	0-3 1/2x5 1/2	27.3	268	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Ray	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
108	30x4 75	30x4 75	McFarlan.....Light Six	0-3 1/2x5 1/2	27.3	268	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Ray	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
121-127	32x6 20	32x6 20	Nash.....Advanced	0-3 1/2x5 1/2	33.8	287	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Ray	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
112-117	31x5 25	31x4 75	Nash.....Special	0-3 1/2x5 1/2	28.4	279	1	He.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
110 1/2	30x4 75	30x4 75	Oldsmobile.....E	0-3 1/2x5 1/2	23.4	207	1	He.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
110 1/2	30x4 75	30x4 75	Oldsmobile.....96	0-3 1/2x5 1/2	23.4	207	1	He.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
100 1/2	27x4 40	27x4 40	Overland.....91	0-3 1/2x5 1/2	19.8	185	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
91	20x4 40	20x4 40	Overland.....93	0-3 1/2x5 1/2	15.6	134	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
112 1/2	32x5 77	32x5 77	Overland.....Packard	0-3 1/2x5 1/2	19.6	154	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
126-133	32x5 77	32x5 77	Packard.....8	0-3 1/2x5 1/2	21.6	170	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
136-143	32x6 20	32x6 20	Packard.....6-72	0-3 1/2x5 1/2	29.4	289	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
115	32x6 20	32x6 20	Peerless.....115	0-3 1/2x5 1/2	36.4	358	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
126 1/2	32x6 20	32x6 20	Peerless.....6-72	0-3 1/2x5 1/2	29.4	289	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
118	32x5 77	32x5 77	Peerless.....8-60	0-3 1/2x5 1/2	25.3	230	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
138	32x6 20	32x6 20	Peerless.....8-60	0-3 1/2x5 1/2	33.8	332	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
130	32x6 20	32x6 20	Pierce Arrow.....33	0-3 1/2x5 1/2	38.4	415	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
130	32x6 20	32x6 20	Pierce Arrow.....33	0-3 1/2x5 1/2	38.4	415	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
110	29x4 75	29x4 75	Pontiac.....33	0-3 1/2x5 1/2	25.3	186	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
120	32x6 20	32x6 20	Pontiac.....33	0-3 1/2x5 1/2	24.3	169	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
131	32x4 31	32x4 31	Mon.....M	0-3 1/2x5 1/2	30.6	361	1	Ch.	Ch.	2	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
131	32x6 20	32x6 20	Mon.....M	0-3 1/2x5 1/2	30.6	361	1	Ch.	Ch.	2	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
117	31x5 25	31x5 25	Own.....E	0-3 1/2x5 1/2	25.3	236	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
121 1/2	32x6 20	32x6 20	Steenbacker.....B-8	0-3 1/2x5 1/2	33.8	315	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
118-138	32x4 31	32x4 31	Steenbacker.....B-8	0-3 1/2x5 1/2	29.4	315	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
128	32x4 31	32x4 31	Steenbacker.....B-8	0-3 1/2x5 1/2	29.4	315	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
115	31x5 25	31x5 25	Steenbacker.....B-8	0-3 1/2x5 1/2	28.9	340	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
138	32x6 20	32x6 20	Steenbacker.....B-8	0-3 1/2x5 1/2	32.5	296	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
8-80	32x6 20	32x6 20	Steenbacker.....B-8	0-3 1/2x5 1/2	32.5	296	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
143 1/2	32x5 77	32x5 77	Steenbacker.....B-8	0-3 1/2x5 1/2	48.6	453	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
103	30x3 3/4	30x3 3/4	Steenbacker.....B-8	0-3 1/2x5 1/2	18.2	152	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
107	29x4 40	29x4 40	Steenbacker.....B-8	0-3 1/2x5 1/2	18.2	169	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
119	32x6 20	32x6 20	Steenbacker.....B-8	0-3 1/2x5 1/2	22.5	249	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
121	32x6 20	32x6 20	Steenbacker.....B-8	0-3 1/2x5 1/2	25.4	249	1	Ch.	Ch.	3	N	Y	Pu.	N	N	Mar.	N	Delco	Delco	P. B&B.	W-G.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	E-T	H	S-58 1/2	Ow.	A-L—Auto-Lite	
130	32x6 20	32x6 20	Steenbacker.....B-8	0-3 1/2x5 1/2	29.4	249	1	Ch.	Ch.	3	N	Y																					

The
LITTLE
MARMON

Age

EXECUTIVE OFFICES
MARMON MOTOR CAR COMPANY
INDIANAPOLIS

July 1, 1926

Mr. Homer McKee, President,
Homer McKee Advertising Company, Inc.,
Indianapolis, Ind.

Dear McKee:

The research work which we have been carrying on for the past two years or more in our Experimental Division seems to be the basis for considerable rumor and speculation in the industry. I refer of course to the little Marmon.

It almost invariably happens that rumors of this kind are so garbled that they do not represent anything like the truth of the matter.

With this in view, will you please arrange to prepare an announcement for the Trade Journals which, although contrary to usual automotive practice, specifically sets forth our plans?

1. The little Marmon will be a companion car to the present large Marmon on which Marmon reputation has been built. The large Marmon, of course, will be aggressively continued.

2. The design of the small car, both from the standpoint of engineering and body architecture will reflect the studies made over a long period in Europe and in this country by Marmon engineers and executives.

3. Its characteristics have been determined with a view to the vast changes which have occurred in our urban traffic and parking conditions.

4. While fully capitalizing the best European ideas and adapting them to American conditions, its engine has been designed and built solely from the American point of view as to power, speed and stamina.

5. The same high standard of quality which has characterized Marmon production for over twenty years will be incorporated in this new car.

6. The conception of the car is so unique that in our opinion it will not be competitive to any automobile now on the American market.

I believe that inasmuch as there has not been any phenomenal development in the automobile industry for some time, and that as the rapidly changing conditions necessitate a small tasteful car as a companion to the larger makes of cars, that it would be perfectly consistent with our policy of development to make a frank statement at this time. This is further emphasized by the fact that we have already been approached by dealers from many important points in this country and abroad for information as to the possibility of securing the Marmon franchise.

Kindly arrange to see me as soon as you have something tangible prepared.

Yours very sincerely,

A handwritten signature in cursive script, appearing to read "Francis Marion".

President.

GMWilliams
R

Mr. Williams' letter on the preceding pages so concisely states the situation that with his permission we simply reproduce it here.

This is not the start of a "campaign", but simply a statement of fact which will enable Marmon and those associated with it to work entirely in the open.

While the new little Marmon has passed through the experimental stages and is now undergoing rigid, transcontinental tests, it will probably be a matter of months before the car is actually presented to the public.

I am authorized to say that before long there will be some interesting advance information for dealers, and if you will write the Marmon Motor Car Company, Indianapolis, Indiana, the sales department will gladly send you the information as soon as available.

HOMER McKEE.

"My Profits on Bumpers are Due to Concentration"



That's the way to make money on bumpers—select one complete, well-balanced line for cars of all weights and price classes. More rapid turnover, less capital tied up in stock, especially if the line is priced for volume sales.

The Gemco quality line meets this requirement of present-day accessory merchandising.

Concentrate on Gemco bumpers for bigger profits. Write for catalog.

Gemco BUMPERS

GEMCO MANUFACTURING CO.
760 SO. PIERCE ST. MILWAUKEE, WIS.

Permanent Exhibit—Automotive Mart
1315 So. Michigan Avenue, Chicago





More than 10 million motorists are using Vulco products. They have learned from experience that the name "Vulco" means extra quality and service. That's why the Vulco Tire is making a record for rapid sales.

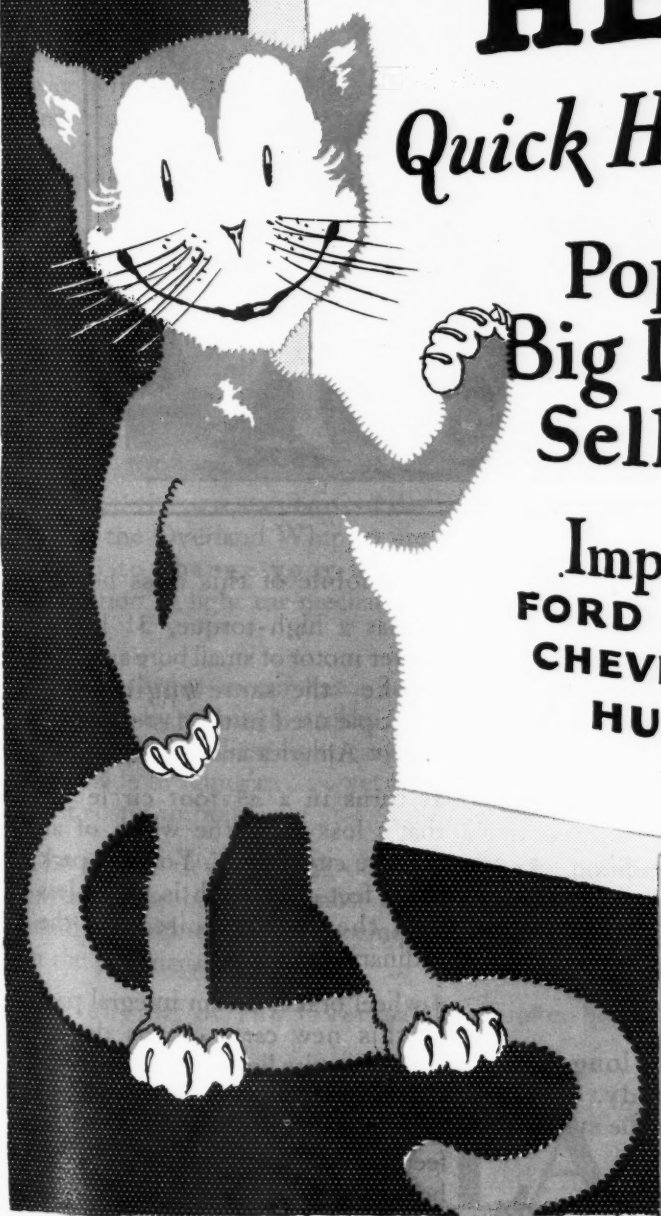
VULCO TIRES

Red Cat HEATERS

Quick Heat - Volume Heat

Popular Prices
Big Dealer Profits
Sell All Winter

Improved Models for
FORD • DODGE • STAR
CHEVROLET • OVERLAND
HUDSON • ESSEX



Plan NOW for Early Heater Orders

Start TODAY—before cold weather comes closer—to select the heater you will sell this winter. Make a few actual tests. Try a RED CAT. See how quickly it heats. Notice the heat volume. Compare the low price and the big profit margin. Talk with a jobber salesman, or write us NOW.

G. A. ROTH MFG. COMPANY
Hastings, Neb.

Now - for America a revolutionary European-type high-speed Light Car



Read this advertisement, then write today for the wonderful franchise plan made possible by this remarkable new-type car.

THIS is the announcement of a revolutionary new-type car . . . radically different from anything you have ever known before.

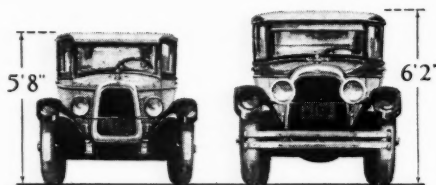
A car that combines the advanced engineering practice of Europe with new and improved standards of American performance.

A car that will travel over 55 miles an hour in perfect comfort.

That will pick-up in 13 seconds from 5 to 30 miles an hour.

A car that will go 30 miles on a gallon of gasoline . . . 1,000 miles on a gallon of oil.

This new-type car is a challenge to all former engineering practice. It



Note how low and gracefully balanced the Overland Whippet is compared with the big, bulky old-fashioned type of car.

casts aside every old tradition. And marks the most important light car engineering improvement in America during the last 16 years.

This new car has a long, low, European-type body. With height and length in true symmetrical proportion.

It is 5 feet 8 inches high . . . not as tall as the average man. Yet it provides more room and comfort than you've ever found in any

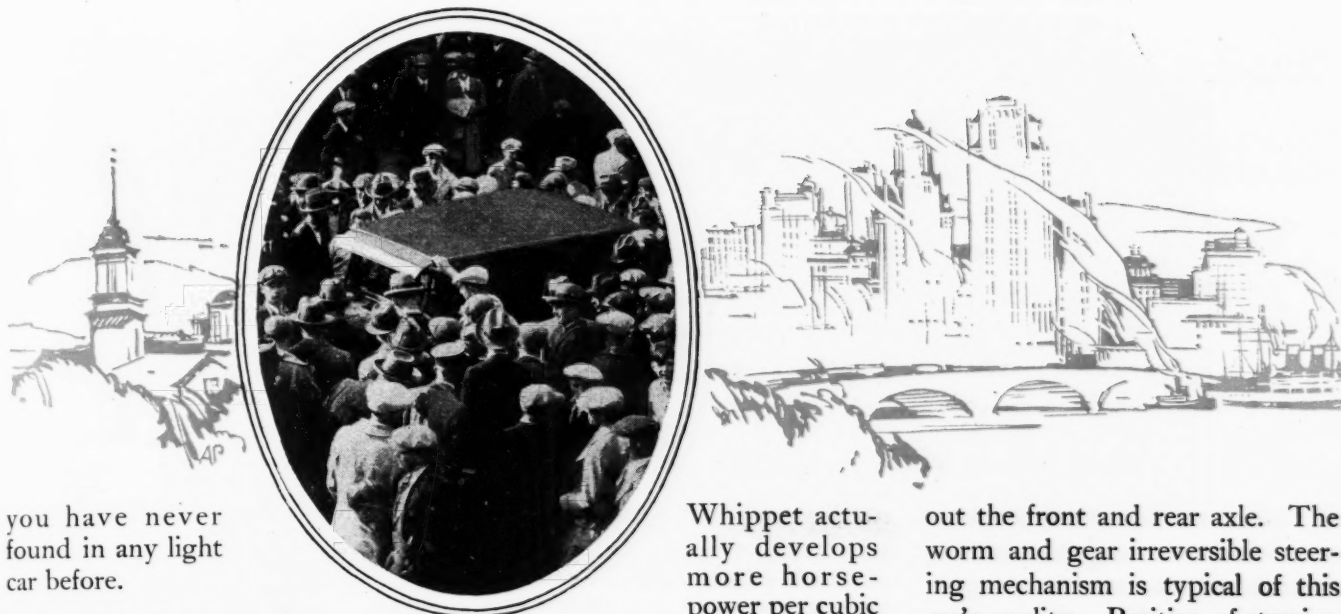
automobile of this class before.

It has a high-torque, 31 horsepower motor of small bore and long stroke—the same engineering principle used in the fastest racing cars of America and Europe.

It turns in a 34-foot circle . . . that's less than the width of an average city street. You can park in 14 feet . . . which is much less than the space required for the ordinary car.

4-wheel brakes are an integral part of this new car's chassis design . . . a necessity light car buyers have not heretofore enjoyed. Measured tests show that it will stop in 51 feet from a speed of 40 miles an hour.

Its center of gravity is extremely low, with ample road clearance . . . thus giving a sense of security



you have never found in any light car before.

In traffic the Overland Whippet gets away with lightning pick-up... stop-watch tests show that it accelerates up to 40 miles an hour, 18% faster than other four-cylinder cars.

It runs like a "six"... pulls like a tractor...

New Standards of Mechanical Design

The new principle... the new ideas... the new standards of design in the Overland Whippet are bound to change your whole conception of light car mechanical features.

Its high-torque motor has a $3\frac{1}{8}$ -inch bore by $4\frac{3}{8}$ -inch stroke. It is by far the smallest light car engine made in America... yet the most costly to build.

The torque development of this engine is probably the most outstanding engineering achievement in the past decade.

The engine of the Overland

Millions welcomed it—thousands bought it—from coast to coast the Overland Whippet has become a sensation in its first few days.

of car weight than any other light car engine made today.

The Overland Whippet is the only light car that has the modern force-feed oiling system throughout the engine, instead of the old-fashioned splash.

It is the only light



car that combines genuine Chrome silicon steel valves with silent chain front-end drive and pump water circulation.

Timken bearings are used through-

Whippet actually develops more horsepower per cubic inch of piston displacement and per pound

out the front and rear axle. The worm and gear irreversible steering mechanism is typical of this car's quality. Position of steering wheel is adjustable to fit the requirements of the individual driver.

It Opens Up Wonderful Sales Opportunities

With the introduction of this new-type car the whole automobile situation is bound to change.

It establishes entirely new standards of performance and value, by which all light

cars from now on must be judged.

The facts only tell you part of the Whippet story.

Write today... let us send you complete franchise details.



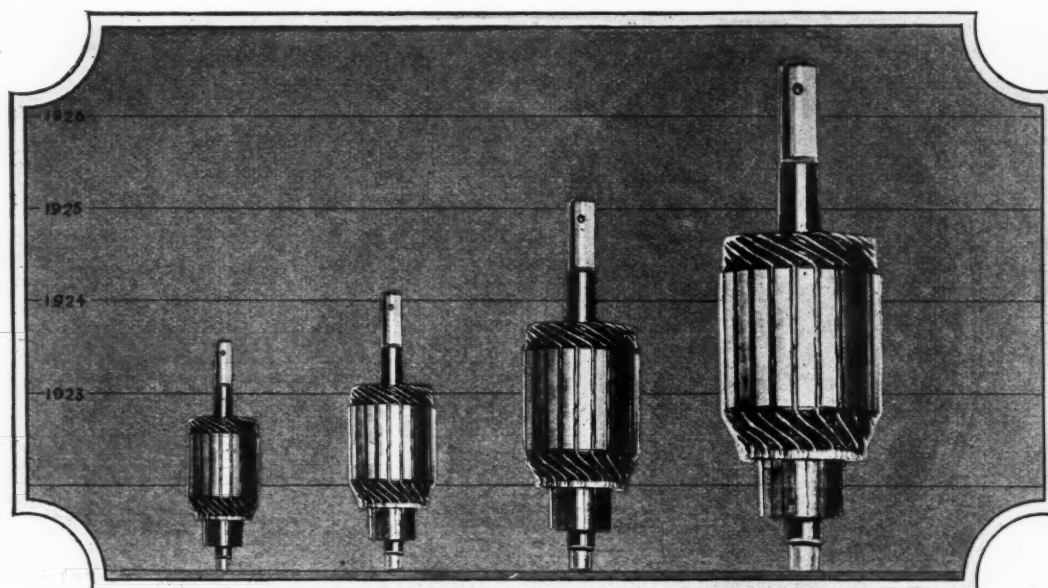
The Overland Whippet will turn in a 34-foot circle... park in a 14-foot curb space. A specially designed steering mechanism makes steering easy.

Willys-Overland, Inc., Toledo, Ohio

Willys-Overland Sales Company Limited, Toronto, Canada
Willys-Overland Crossley, Limited, Stockport, England

OVERLAND Whippet

America's New-Type Light Car



up...up...UP/

A constant increase in Fredericks Rewinds Sales; More and more repairmen getting the greater profit they pay

TODAY, the use of **Fredericks Rewinds** is nationwide. Repairmen everywhere use them with confidence. As burned out cores are received they ship them to Lock Haven for a rewind duplicate . . . Or replace them from their own stock of **Fredericks Rewinds**. So that Fredericks business today is better than ever before, and constantly sweeping upward.

If you have never used a **Fredericks Rewind** you may not know this. Unlike ordinary rewind armatures, **Fredericks Rewinds** are made with the care and skill and same high grade materials as new armatures. Backed by the same guarantee! Give the same service. But pay a far greater profit.

Ship the next burn-out you get to us. Carry a small stock of **Fredericks Rewinds**. For complete details and prices, use the convenient coupon now.

FREDERICKS *Rewinds*

MAIL
TODAY!

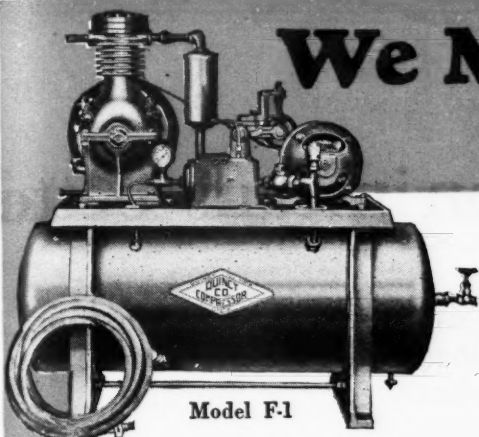
THE H. M. FREDERICKS CO., LOCK HAVEN, PA.

You may send me complete information on Fredericks Rewinds.

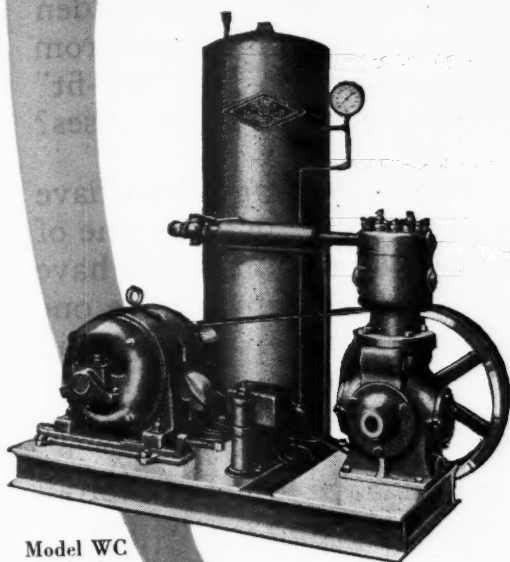
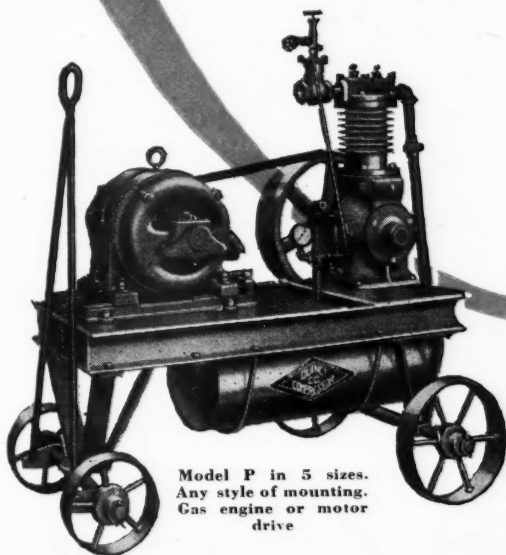
Name.....Company.....

Address.....

We Make the Compressor You Need!



Model F-1

Model WC
in 3 sizesModel P in 5 sizes.
Any style of mounting.
Gas engine or motor
drive

K-302

PRACTICALLY every man has his life work; something into which he puts his soul and he builds more for the final results than for gain. Here in Quincy we have worked for years fashioning metal and mechanical principles into Quincy Air Compressors. Because we've been willing to sacrifice a bit of profit to build true worth, Quincy Compressors hold a reputation for service and long life equalled by none.

Yearly the Quincy line has increased to meet demands. Today there are few air jobs that Quincy can't do. What are your requirements? Air service for garage or service stations? A compressor for auto laundry, paint spraying, pneumatic tools, sand blasting? No matter, we have a Quincy Air or Water Cooled Compressor ready to shoulder the responsibility of doing your work satisfactorily and economically.

We can't tell the entire story of Quincy quality and service here. But the coupon, just below, signed and mailed, will place your name on the list to receive Quincy literature. Complete details of construction, size, adaptability and price will be sent you without charge. Even if you are not in need of a Quincy now, these facts will save you money in the future.

QUINCY COMPRESSOR CO., Quincy, Ill.

Formerly Wall Pump & Compressor Co.

Quincy
Air Tower

Quincy Compressor Co., 219 Maine St., Quincy, Ill.

Please add my name on your mailing list to receive the complete story of Quincy Compressors.

Name

Address

City State.....

SEND THIS COUPON

QUINCY COMPRESSOR CO.

Quincy



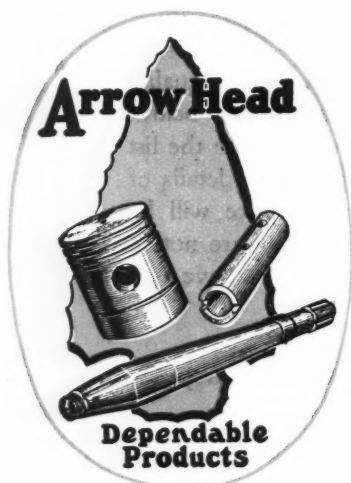
Illinois

Concentration means better

HAVE you an exact and fixed cost on pistons fitted with pins? Does this assembly come to your works correct and ready for the motor?

Or do you have foundry and machine losses hidden in your costs? Do your pistons and pins come from different sources—leaving you the cost of “try-fit” assembly as well as rejection costs and labor losses?

Does your competition enjoy advantages you have not thoroughly investigated? Is your plant one of the many compressor and engine factories that have not yet learned how much it is worth to have one thing done well—to have the piston and pin assembly brought as near perfection as metallurgy and the finest specialized facilities can accomplish?



Arrow Head's most complete and flexible up-to-date line assures quick service on the 3,500 most-called-for fits and applications, including practically "all motors, all years, all models."

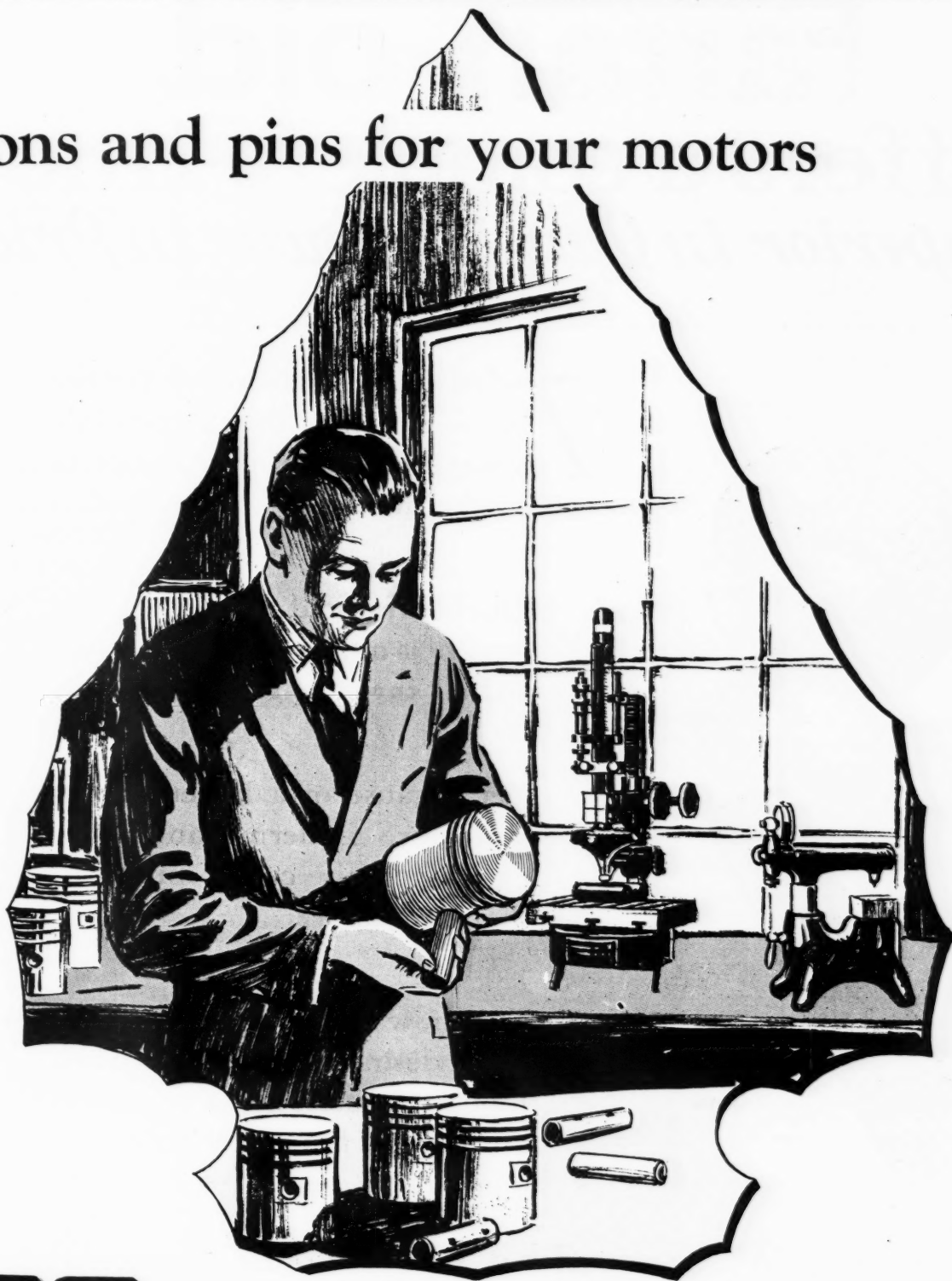
Arrow head has concentrated large funds of capital, research and energy upon perfection of the piston and pin—and upon complete, ready-to-be-installed piston and pin assembly. Motor makers who have thoroughly investigated Arrow Head's ability to minimize their inventories and cut their assemblage costs have incorporated Arrow Head service into their production layouts with highly satisfactory results.

Arrow Head Steel Products Company
Minneapolis, Minn.

ARROW

Pistons • Piston Pins

pistons and pins for your motors



Head

Axle and Drive Shafts

Farran-oid

offers a complete line

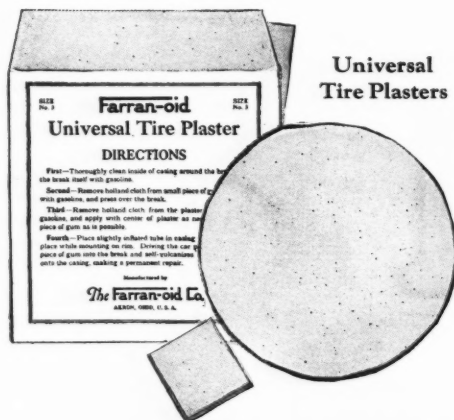
Superior in Quality-Lower in Price



Tire Flap
(Reeled)



Red Radiator
Hose



Universal
Tire Plasters

THE Farran-oid Line of Rubber Necessities for the automobile is now one of the most complete on the market.

Like Farran-oid Fan Belts, the quality is much above the standard all through the entire line.

Yet because of a larger output and more modern manufacturing devices the cost is much less than heretofore.

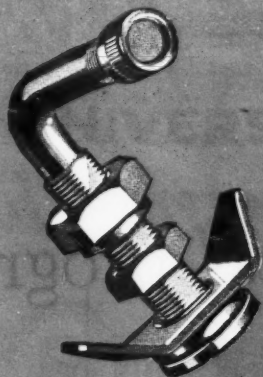
This now makes Farran-oid the most desirable on the market. Jobbers, Dealers and Consumers alike can truthfully recommend it.

The Farran-oid Company
Akron, Ohio

The new complete line consists of the following items:

Fan Belts

Radiator Hose	Blow-out Patches
Garage Air Hose	Universal Tire Plasters
Car Washing Hose	Tire Flaps
Tube Patch Outfits	Ford Floor Mats



DILL ANGLE VALVES

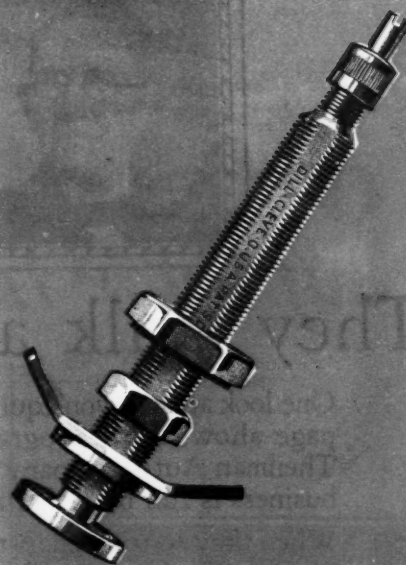
Made in all standard sizes for both passenger-car and truck tires.

TIRE and car manufacturers have turned to Dill. So have millions of autoists. They have found that Dill valve parts are the product of a sincere desire to make the finest valve equipment that skill and careful workmanship can produce. The present-day demand makes it mighty profitable for dealers everywhere to stock and display Dill valve parts.

Dill Instant-Ons, Dill Valve Insides and Dill Valve Caps are packed for re-sale in convenient display stands. Order from your jobber or branch warehouses of the leading tire companies.

THE DILL MANUFACTURING CO.
Cleveland, Ohio

Manufactured in Canada by the Dill Manufacturing Company, Canada, Ltd., Toronto



DILL STRAIGHT VALVES

Made in all standard sizes for all types of cord and balloon tires.



DILL VALVE INSIDES

Overcome the defects which most commonly cause accidental under-inflation. Spring and valve stem protected by metal barrel. No jamming or bending.



DILL INSTANT-ONS

Combined Dust-and-Valve-Cap. On or off in a wink. Used as standard equipment by 31 leading car manufacturers.



DILL VALVE CAPS

Designed to give utmost protection to the valve insides and to serve as another definite seal to the valve.

DILL

Standard Tire Valves and Valve Parts



They walk abreast in business progress

One look at the Lyon-equipped salesroom illustrated on this page shows how progressive in sales methods is the Theilman Auto Company of Grand Haven, Michigan. The business is run by father and son.

When they considered installing a Lyon Auto Parts Control System, Theilman, Sr. did not argue that the old way was good enough for him. He believed in the progressive sales ideas of Theilman, Jr., and was experienced enough to see the advantages of a stock that could easily be balanced with sales and kept under daily visible control.

Many an automotive sales business has shown increased sales and increased profits through the display made possible by Lyon Steel Counters and the quick, low-cost service made possible by Lyon system. There is a Lyon Auto Parts Control System that will fit perfectly your own business. Write for complete information.

Lyon Metallic Manufacturing Company

Eastern Factory
Newark, N. J.

AURORA, ILL.

Western Factory
Los Angeles, Calif.



Leading Automotive Jobbers Sell

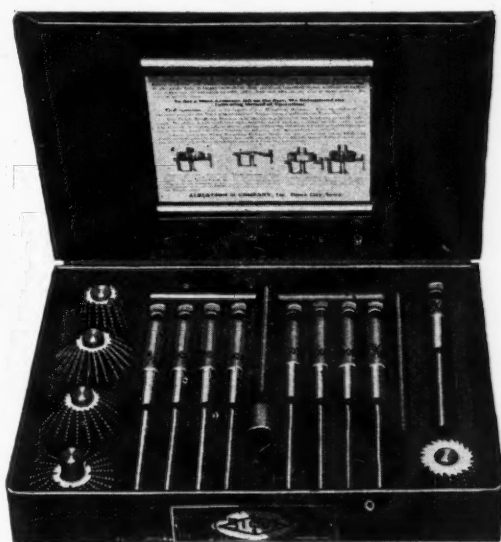
LYON AUTO PARTS CONTROL

COMPLETE STEEL STORAGE SYSTEMS FOR AUTOMOTIVE PARTS AND ACCESSORIES

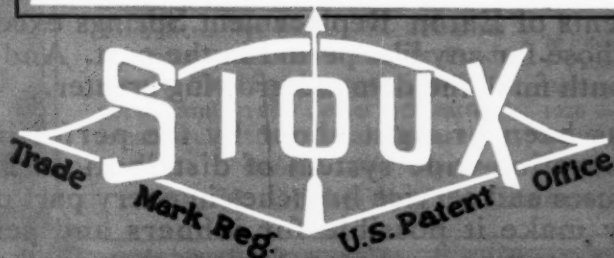
VALVE SEAT REAMER SETS

UNIVERSAL

TYPE



SET NO. 38 NET PRICE COMPLETE \$30



SET NO. 25 NET PRICE COMPLETE \$20

Here are reamers absolutely **new** and **different!**

They work with amazing ease and smoothness.

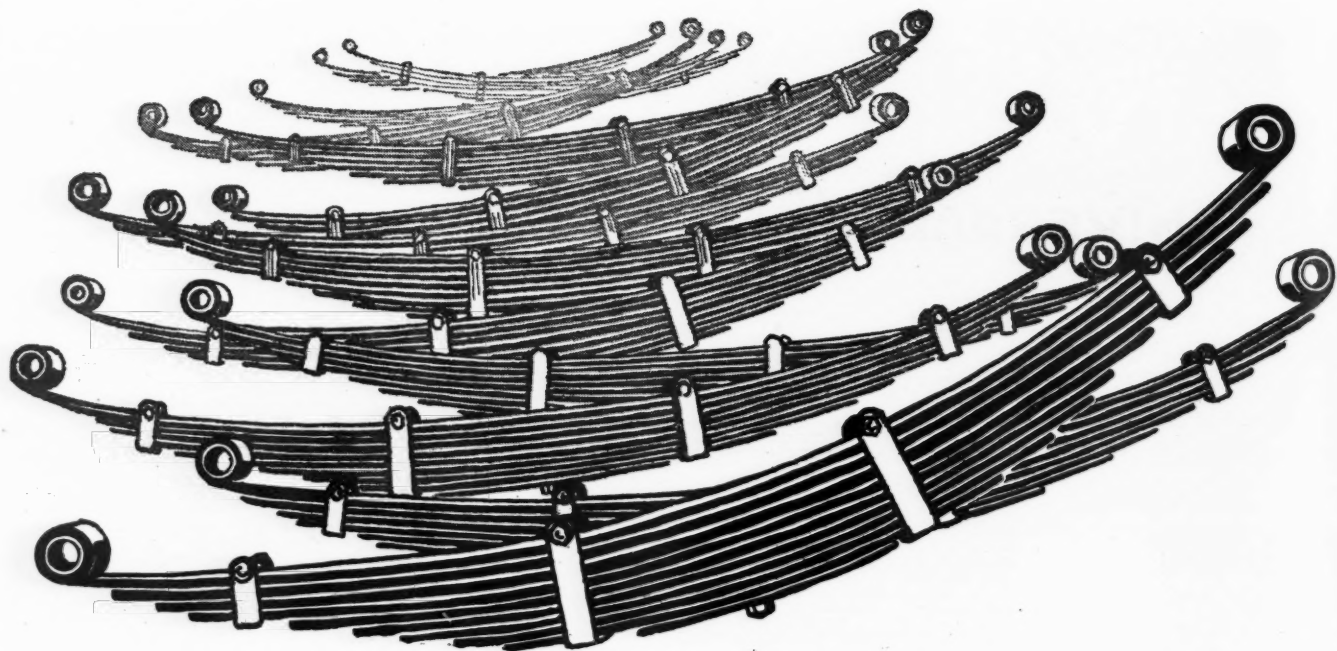
Each set includes 45° Roughing Reamer for removing hard carbon deposits, 45° Finishing Reamer, 15° and 75° Nicked Tooth Reamers for narrowing valve seats, pilot stems [including oversizes for worn guide holes] and T handle.

No. 38 Set handles 90% of all motors. **No. 25 Set** for all Fords and Fordsons, Chevrolet, Durant, Essex 6, Oakland, Oldsmobile "30" and Velie.

Your Jobber Sells Them

ALBERTSON & CO.

SIOUX CITY, IOWA



Eaton's shipments of replacement springs are breaking all records!

DURING the first four months of 1926 the shipments of Eaton Replacement Springs exceeded by far those for any like period in the past. And each new month finds the demand growing greater.

The Eaton organization also produces the famous Eaton Axles and Eaton Bumpers

This has been brought about by the perfecting of Eaton's nation-wide system of distribution. Eaton warehouses and service branches in every part of the country make it possible for jobbers and service stations to secure the Eaton Springs they need when they need them.

Complete details of the very attractive Eaton Sales Plan will be forwarded on request.

THE EATON BUMPER & SPRING SERVICE CO.
Cleveland, Ohio

Factory Branches with complete warehouse stocks at—Boston, Philadelphia, New York, Cleveland, Detroit, Chicago, Minneapolis, Kansas City, Denver, Dallas, Atlanta



EATON SPRINGS

Formerly AMERICAN and PERFECTION Springs



A Ford Service Profit Maker

Here's another new Gilmer idea that helps dealers make extra sales.— This attractive broken-back counter display assortment of Gilmer Products for Ford Cars comes all ready to set up, and on any dealer's counter it means quick turnover and, of course,

profits. It makes an excellent display and the assortment includes:

10 Packages Rubber-and-Cord Fan Belts; 5 Packages "46" Transmission Lining; 1 Package "46-26" Transmission Lining (for 1926 models); and 3 Packages Radiator Hood Lacing; — all for FORD CARS.

Order this quick selling assortment from your jobber today

L. H. GILMER CO., Tacony, Philadelphia, Pa.

Gilmer

Makers of the World's
Best Known Fan Belts



A Tire For Every Buyer —The Line Is Complete

NO matter what the class of service, nor how severe the requirements, there is a proper BADGER tire for the purpose.

Passenger, Bus, Commercial or Delivery car—all offer possibilities for the BADGER line. And every Dealer should get his share of this business if he has the right line. That line is BADGER—Sold through leading Jobbers everywhere.

The Badger Rubber Works
Milwaukee, Wisconsin



Makes all Fords better Fords/

The year round sale of the New Bosch (3-point Control) Shock Absorbers, for Fords is a profitable business. Bosch Shock Absorbers give superior service with the added feature of being correctly adapted to Ford car requirements. They sell at a profitable price.

One Bosch Shock Absorber in the front, two in the rear provide spring control exactly where Ford Springs should be controlled to check rebounds and prevent swaying and rocking. Ford Owners everywhere are enjoying the new riding comfort—the big car steadiness that Bosch (3-point Control) Shock Absorbers accomplish. Ford owners are pleased with the money saving protection and additional comfort these new Bosch Shock Absorbers give their cars.

Built in standard units with Bosch precision and advertised to the whole Ford owning public.

Order today and start a new line of profit in your business. Price \$16.50 per set including all necessary fitters, and the installation is easy. The nearest Bosch Branch will fill your orders.

The New Bosch Shock Absorbers For Other Cars:
Medium Cars \$15 per pair Heavy Cars \$20 per pair

AMERICAN BOSCH MAGNETO CORPORATION

Main Office and Works:

Springfield, Massachusetts

Branches:

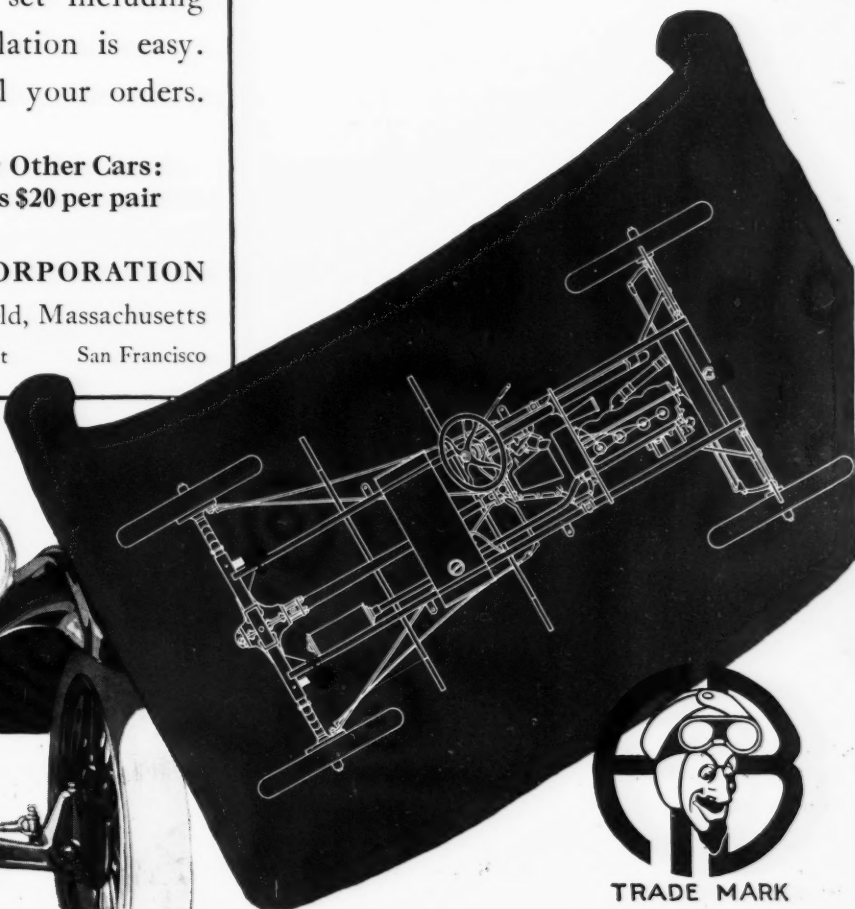
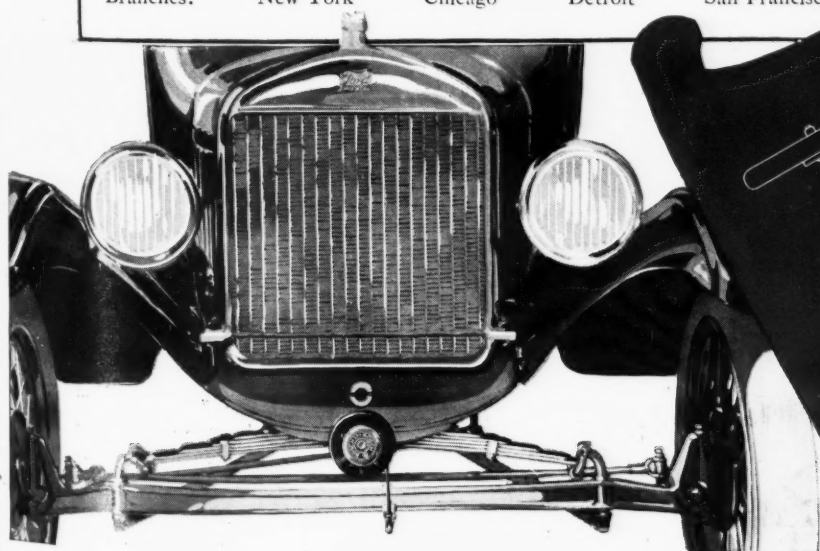
New York

Chicago

Detroit

San Francisco

Only \$16⁵⁰
for
**3-POINT
CONTROL
set of
BOSCH
SHOCK
ABSORBERS**

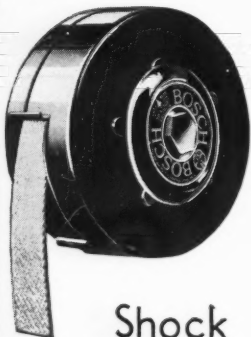


Profit Makers!

The BOSCH LONG LINE of Automotive Necessities



Electric
Windshield
Wiper



Shock
Absorber



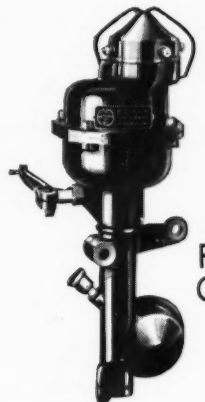
Spark Plug



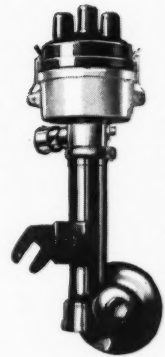
Ignition
Coil



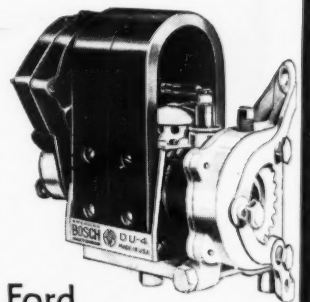
Electric Horn
Straight Model
and
Curved Model



Fordson
Governor



Ford
Ignition
Type
600



Ford
Ignition
Magneto
Fitting

HERE'S a complete line of Quality accessories—all made by one firm. It's no longer necessary to deal with one company selling shock absorbers, another selling spark plugs, etc. If you handle the Bosch Long Line, you have the selling rights to 10 popular accessories—high grade, dependable, moderately priced, and every one a real necessity. You have the Bosch reputation, prestige, advertising and dealer helps to aid you in selling. Liberal Bosch discounts to assure good profits. Your profits come from fast moving items which keep your capital turning over constantly. Bosch Automotive Necessities are called for by buyers who want merchandise of a known quality. There is a substantial profit in supplying that demand.

Ask About the Bosch Dealer Franchise

You can profit still more by becoming an Official Bosch Dealer. The requirements are simple—the benefits many. Some of the advantages you would get are: Special discounts on all Bosch material. Greater profits through increased sales. Personal assistance from Bosch salesmen. New markets—added prestige locally. Reference books, active sales literature, etc. Sales promotion and advertising service.

For full particulars, fill out coupon and mail TODAY.

AMERICAN BOSCH MAGNETO CORPORATION

Main Office and Works:

17-23 W. 60th St., New York
3737 Michigan Ave., Chicago

Branches

Springfield, Massachusetts

89-95 Hancock Ave. W., Detroit
1262 Post Street, San Francisco

Mail this Coupon TODAY

AMERICAN BOSCH MAGNETO CORPORATION

Send me full particulars about:

- | | |
|---|--|
| <input type="checkbox"/> Complete line | <input type="checkbox"/> Ford Ignition Systems |
| <input type="checkbox"/> Shock Absorber | <input type="checkbox"/> Fordson Ignition System |
| <input type="checkbox"/> Windshield Wiper | <input type="checkbox"/> Fordson Throttle Governor |
| <input type="checkbox"/> Spark Plug | <input type="checkbox"/> Bosch Radio |
| <input type="checkbox"/> Electric Horn | <input type="checkbox"/> Bosch Dealer Proposition |

Ship me the following units at quantity discount C.O.D.—

Firm Name.....

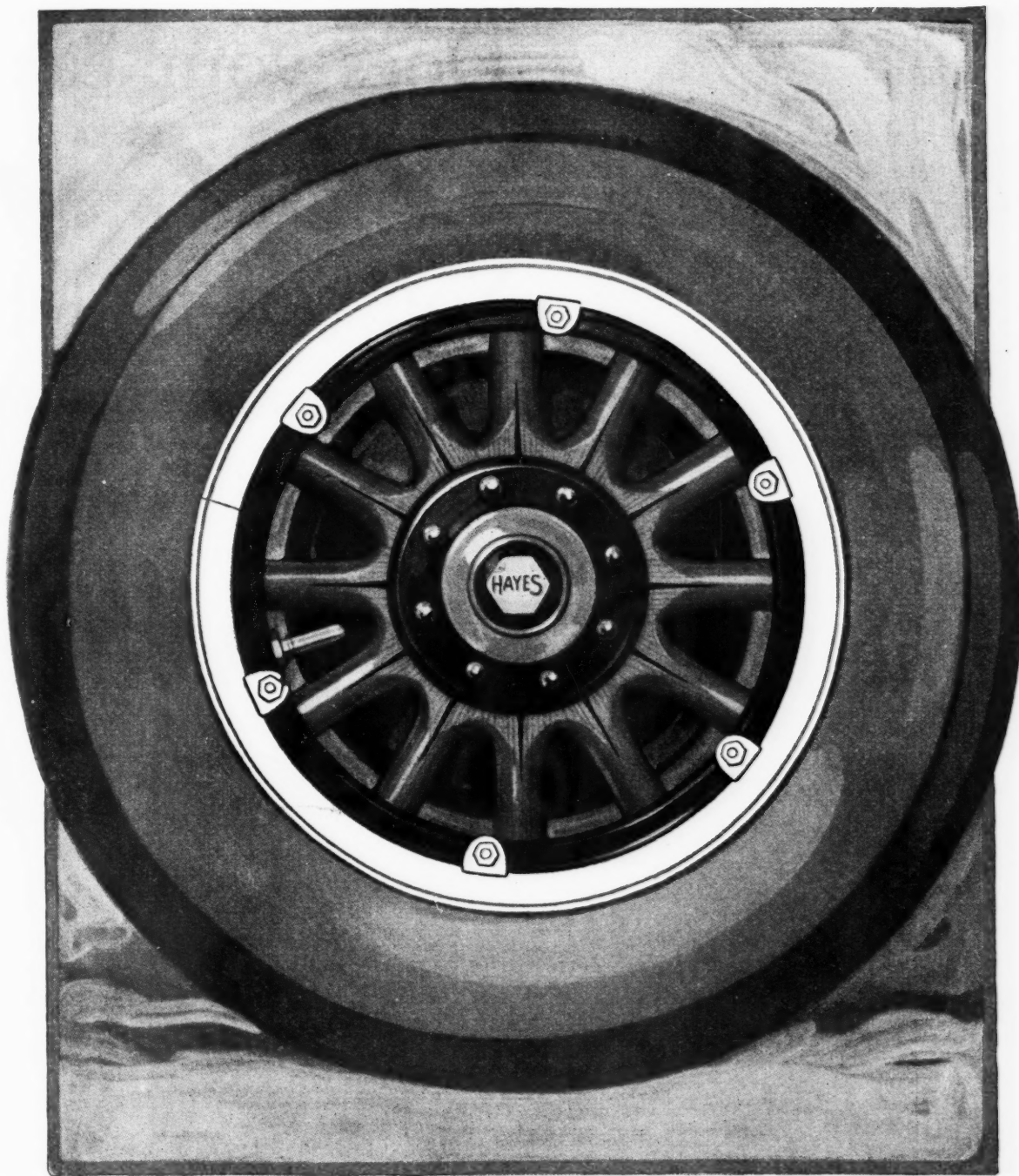
Street Address..... City..... State.....

Date..... Signature.....



BOSCH RADIO

Bosch Radio Receivers are noted for their tonal quality, beauty of appearance and simplicity of operation. They are furnished in 5, 6 and 7 tube types with two cone type reproducers and a range of socket power units. They provide a profitable line of radio products with a perfect performance and price range.

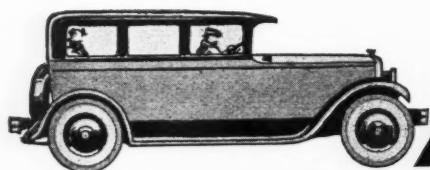


HAYES WHEELS

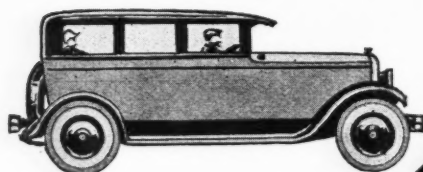
of Natural Wood

HAYES WHEEL COMPANY, Mfrs., Jackson, Mich.



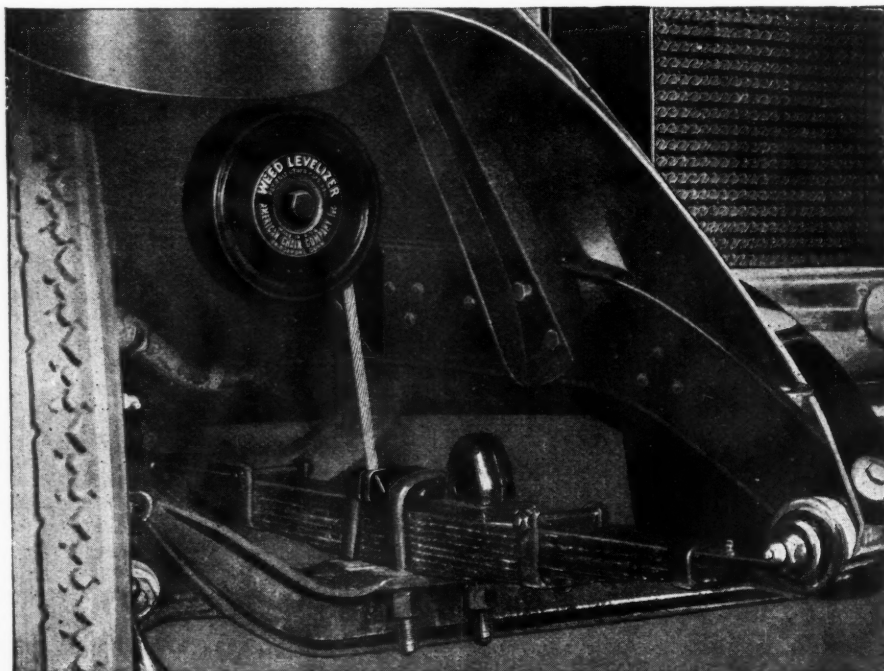


Does your car



You can make it

The new **WEED** Levelizer



Made and recommended
by the makers of
WEED CHAINS and **WEED BUMPERS**

ride like this?

ride like this!

levels the road as you go

Levelizers not only produce a wonderful ride, but they save springs and tires. They effectively control rebound of car body with a smooth, flexible restraint.

You can say, too, that WEED Levelizers will not stiffen spring action over good roads. This is because they ease up on smooth roads to give free action to the car springs, thus eliminating the hard, jerky sensation of too rigid resistance.

for all makes of cars

WEED Levelizers are made for all makes of cars, heavy or light. Easy to apply and they stay "put". Nothing to get out of order. The adjustment is set at factory for light and heavy cars.

Put a set on your own car and convince yourself . . . you'll want to sell them, and recommend them to your customers. See your jobber, or write direct to



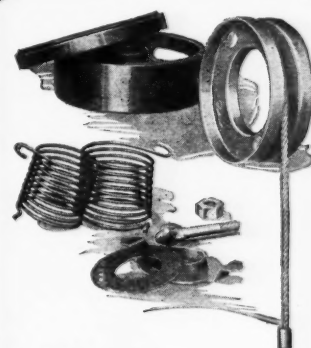
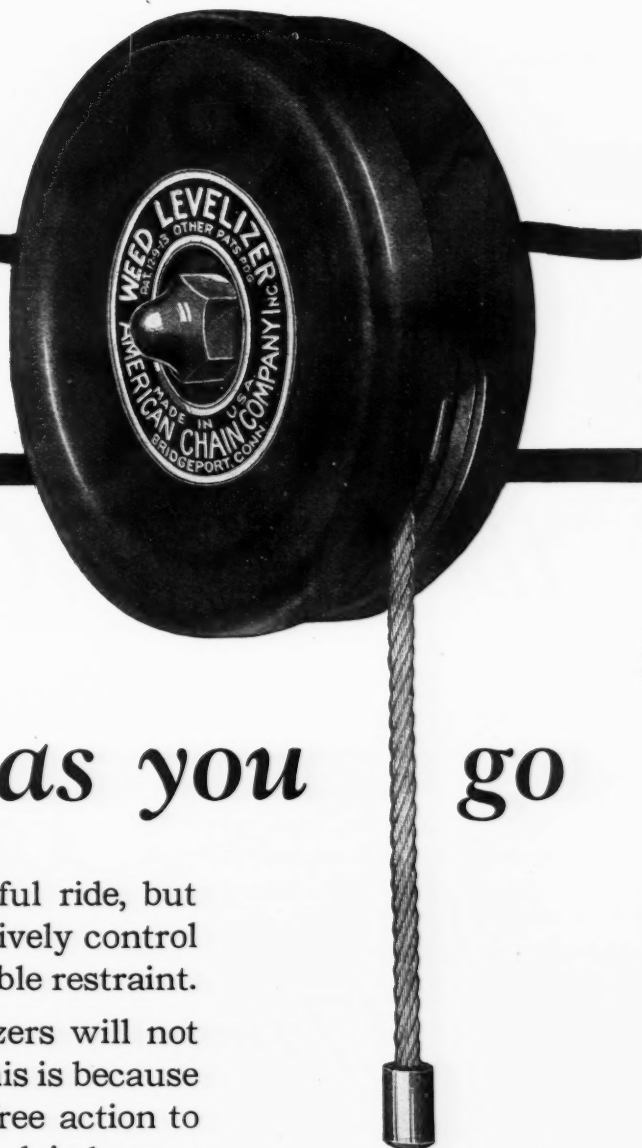
AMERICAN CHAIN COMPANY, Inc.

BRIDGEPORT, CONNECTICUT

IN CANADA: Dominion Chain Co., Limited, Niagara Falls, Ontario

DISTRICT SALES OFFICES:

Boston Chicago New York Philadelphia Pittsburgh San Francisco



No oiling—
no adjusting
No straps to stretch,
fray or rot
**SIMPLE
EFFICIENT**

OAKLAND

presents

the Greater Oakland Six

With

77 Important Refinements
featuring

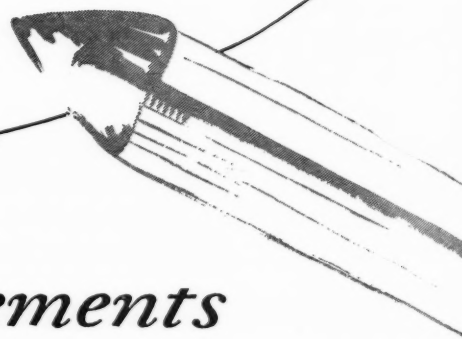
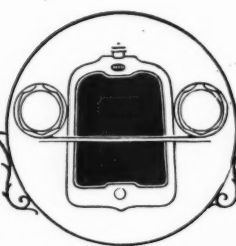
Smart New Bodies by Fisher
in striking two-tone Duco Colors

Vital Engine Developments
*and the latest triumph of-
advanced Oakland Engineering*

The Rubber-Silenced Chassis
in addition to

The Harmonic Balancer

No Increase in prices





—and thereby increases the
value of the
**Double-Profit
Franchise**

This announcement marks another milestone in Oakland's dramatic sweep to leadership.

Fortifying Oakland's position as the industry's pioneer in many engineering advancements, it gives Oakland-Pontiac dealers a car that is destined to achieve new heights of popularity.

In itself, the Rubber Silenced Chassis would constitute an announcement no less far reaching and important than Duco finishes, interchangeable bronze-backed bearings and the Harmonic Balancer—in the adoption of which Oakland led the entire industry.

Yet it is merely one of the 77 refinements offered in the Greater Oakland Six, without the slightest increase in prices.

Dealers who have been watching Oakland's irresistible march to success and who have seen the Pontiac flash into the field of low cost sixes and exceed IN A HALF YEAR the greatest full year production record heretofore made by any new make of car—

—those dealers need no suggestion as to what the advent of the Greater Oakland Six means to holders of the Double-Profit Franchise!

They know that it will almost automatically

increase dealer profits—for profits are based on sales leadership and sales leadership, in turn, on *value leadership*.

They know that it cannot help having a beneficial effect on Pontiac Six sales—for a car of such outstanding beauty and so many engineering innovations as the Greater Oakland Six will prove an irresistible salesroom magnet to those who are logical Pontiac prospects.

And they know that it makes only more valuable to them those basic principles that have made the Double-Profit Franchise one of the most eagerly sought in the industry; liberal discounts, unusual and intensive merchandising co-operation, equitable terms of doing business and eight body types, with a price range from \$825 to \$1295.

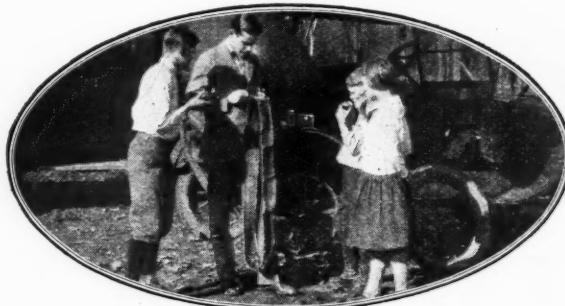
If you are one of those dealers, let us urge you to take immediate action toward securing the Double-Profit Franchise.

Over 1700 new dealers have signed the Oakland-Pontiac agreement in less than a year. With the announcement of the Greater Oakland Six, still further gains in sales and profits are to be expected. Write or wire department C for complete information.

OAKLAND MOTOR CAR COMPANY, PONTIAC, MICHIGAN

OAKLAND-PONTIAC
PRODUCTS OF *Sixes* GENERAL MOTORS

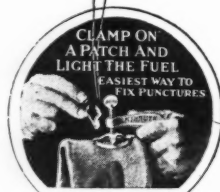
Don't Let This Extra Profit Go Up in Smoke!



Ask every customer—"Have you plenty of patches for your 5-Minute Vulcanizer?" This easy question sells a lot of Shaler Patch-&-Heat Units to motorists who have Shaler Vulcanizers but have used up their supply of ammunition.

And if the customer happens to be one who doesn't have a Shaler Vulcanizer, the chances are that the question will make a sale—and another steady customer who keeps coming back for Shaler Patch-&-Heat Units. Show 'em and Sell 'em.

Ask your jobber's salesman about the Shaler Selling Cabinet, and write for other attractive display material to tie up to our big advertising in Saturday Evening Post, Liberty, etc.



50 MILLION
Shaler Patches
Used in 1925



C. A. SHALER CO.

WAUPUN, WIS.

There are Profit Making Ideas in Every Issue of

MOTOR AGE

Many subscribers of MOTOR AGE, who realize the value of its contents each week, route every issue regularly through their places of business to all departments.

As a means of business-building this is a profitable habit to encourage, both for the benefit of the organization and its individual members. It is always best to read MOTOR AGE every week.

MOTOR AGE

5 SO. WABASH AVE.

CHICAGO, ILL.

Announcing another PRICE REDUCTION on AKRON STANDARD OVERSIZE CORDS

Effective immediately, prices on all Akron Standard cords are reduced to a new low level.

Never have you been in a better position to offer car owners a greater tire value or a lower price than you can now with Akron Standard cords—a tire of exceptionally good appearance—Full Oversize—built to give Service and Satisfaction—one of the fastest selling tires for thousands of dealers today. A tire with which you can meet competition on any footing.

Write immediately for full particulars and prices on our entire line. Or, if you wish to save time, mail or wire a sample order immediately to be shipped subject to your examination

and acceptance. If satisfactory, pay expressman amount due for this initial order. If not, you may return shipment at our expense both ways.



The following prices on a few sizes are representative of our low prices. All prices f.o.b. Chicago.

30x3 Cl.	\$ 5.45	30x5.25	\$12.40
31x4 S.S.	9.65	31x5.25	12.90
32x4 S.S.	9.90	30x5.77	14.95
32x4 1/2 S.S.	14.25	32x5.77	16.90
33x5 S.S.	17.90	33x6.00	16.90

Complete price list of tires and tubes upon request.

SALESMEN

We are expanding our sales organization at once and can place a number of good salesmen.

If you are now calling on the automotive trade, write immediately giving full particulars. There is an opportunity here for the right man to earn a good income. Write immediately for full particulars.

AKRON STANDARD RUBBER CO.

General Sales Offices

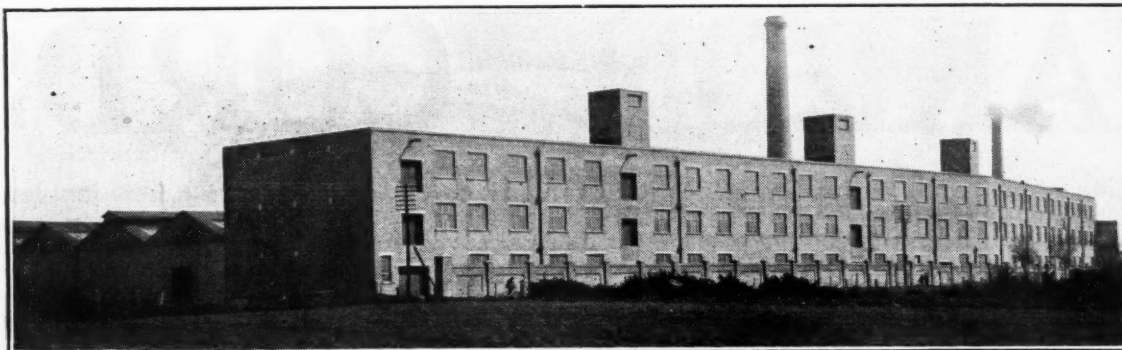
2039 S. Michigan Ave. Chicago, Ill.



Extensive Newly-built Freehold Waterside
MANUFACTURING PREMISES

at
Lowestoft, Suffolk, England

with frontage to the deep water Harbour, berthing accommodation for steamers, L. & N. E. Ry. sidings run into works, large supply of Electric power and cheap labour, low freightage and railway rates.



THE SUBSTANTIALLY CONSTRUCTED FACTORY

is well lighted and contains OVER 300,000 sq. ft. of FLOOR AREA, half of which is on the ground floor; it is equipped with modern power plant, ready for immediate occupation and capable of housing an extensive business. The Site area of works and additional land is 12½ acres.

Plans, particulars and order to view of—

LEOPOLD FARMER & SONS

Factory Specialists, Auctioneers and Surveyors

46, Gresham Street, Bank, E. C. 2 and Kilburn, London, England

When a man wants
 a **REAL Tire Pump**
 sell him a

ROSE
 Easy Valve Action
TIRE PUMP

FRANK ROSE MFG. CO. HASTINGS, NEBR.

*Five
Things
you
want*

1. The deliveries, the quality, the service, that come out of a new two-million-dollar plant with 37 years' electrical experience behind it.
2. The kind of franchise you would write yourself—maintaining prices, protecting territories, allowing good profits—a franchise proved right with 3000 dealers, and lived up to in the past.
3. The exclusive handling of a radio receiver that has spread into every state in the Union in three years; is now one of the six leaders; was the first practical single dial control set; is still the only set accompanied by its own Air Telephone Directory.
4. Twenty-two full page advertisements in four months in the Saturday Evening Post, the Literary Digest, Liberty, bringing buyers to you.
5. A line from \$89 to \$250.00—five, six, and seven tube—the lowest prices on the market for sets of such tone quality, beauty, selectivity, and volume.

*What
Radio
Manufacturers
Can Give you
all of them
for 1926-7?*



THE Day-Fan business is now twelve times as big as it was five years ago. Day-Fan has just expanded into a new two-million-dollar plant, trebling its production facilities.

Day-Fan's success is based not only on turning out a remarkable radio receiver, but also on being one of the first radio manufacturers to stabilize the dealer's business with a franchise that meant more than words. These are not vague promises. They are things which

are proved by our past experience.

We invite correspondence from all high class radio dealers, and are prepared to show you the reason why you should handle Day-Fan.

If you take on Day-Fan this coming season you will be taking the first step in the building of a solid, substantial and profitable business. Send the coupon.

Day-Fan

RADIO RECEIVERS

DAY-FAN ELECTRIC COMPANY

Formerly The Dayton Fan & Motor Company

DAYTON, OHIO

For More Than 37 Years Manufacturers of High Grade Electrical Apparatus

DAY-FAN ELECTRIC COMPANY DEPT. E
DAYTON, OHIO

You may send me particulars regarding Franchise
for ☐ Distributors ☐ Dealers.

NAME _____

ADDRESS _____

TOWN _____

STATE _____

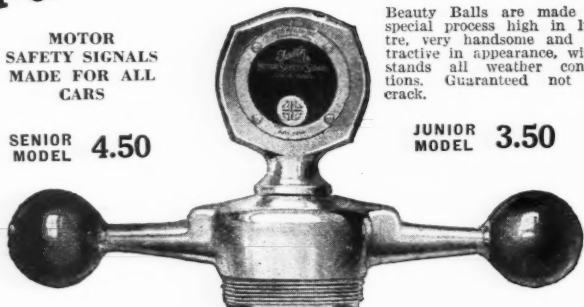
Faith BEAUTY BALL LOCKING CAP

FOR ALL MODEL CARS

MOTOR
SAFETY SIGNALS
MADE FOR ALL
CARS

SENIOR
MODEL 4.50

JUNIOR
MODEL 3.50



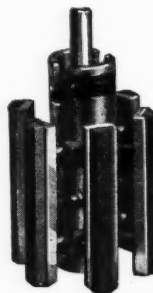
FAITH MFG. CO., 2539 N. Ashland Ave., Chicago, Ill.

Beauty Balls are made by special process high in lustre, very handsome and attractive in appearance, withstands all weather conditions. Guaranteed not to crack.

HUTTO POSITIVE SET PORTABLE



CYLINDER GRINDER



SELF-CENTERING
NON-CHATTERING
SELF-ALIGNING
NON-CHARGING
POSITIVE SETTING
17000 USERS

Write us for name of nearest
authorized HUTTO Jobber.

HUTTO ENGINEERING CO.

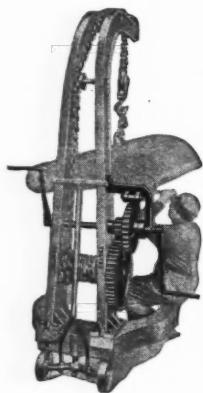
523 Lyncate Ave.

DETROIT, MICH.

CANTON

Portable Crane and Hoist

Is Now Equipped with Safety Friction
Load Brake



The purpose of the Canton Portable Crane and Hoist, equipped as it now is with the new Safety Friction Load Brake, is to make even more money for service and repair shop men, than ever before.

The Service Friction Load Brake holds the load at any point, and makes it impossible for the load to get away from the operator. On all new models and for all models already in use.

Write for a copy of the illustrated booklet M. A., and additional literature describing the outfit. It will show you the way to better profits.

The Canton Foundry & Machine Co.
Canton, Ohio

New York Office—303 East 15th Street

The Gill Combination

FREE! Twenty minutes
with this little booklet
will show you the knack
of selling piston rings,
profitably. Sent free.



THE GILL MFG. CO.,

8300 So. Chicago Ave., Chicago, Ill.

GEORGIA DISTRIBUTOR FOR THE Hayes No Leaf Unbreakable Springs

for FORD Cars and Trucks

CITY BLACKSMITH SHOP

H. D. McIntosh, Prop.

Waycross, Ga.

There Simply Isn't Any Better Flux Made Than Rubyfluid!



A complete substitute for dangerous acids, Zinc Chloride, Salammoniac and other mixtures commonly used as a flux. Ruby Fluid is quick acting, anti-rusting and is always ready for instant use. Ruby users include the foremost industries of the country. Send for generous Free Sample

Rubyfluid

COMBINATION
SOLDERING AND TINNING FLUX

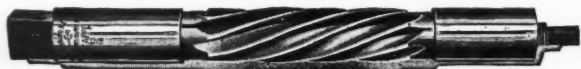
THE RUBY CHEMICAL CO.

68-70 McDowell Street

Columbus, Ohio

Protect the Oil-Grooves

By finishing bushings with FULL spiral fluted SMOOTH-KUT Reamers. The full spiral causes a continuous shearing action that cuts clean and can't hurt the oil-grooves.



Patented April 7, 1925.

SMOOTH-KUT are the only full-spiral expansion reamers made. They are guaranteed, and reground by us at cost. Studebaker, Velle, Franklin, Lycoming, Muskegon and others use SMOOTH-KUT in production. As a finishing tool for the Piston pin hole.

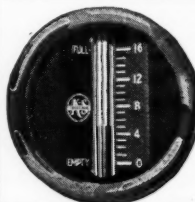
Your jobber can supply them singly or in sets. ASK FOR THEM BY NAME, as imitations are inferior products.

Millersburg Reamer & Tool Co., Millersburg, Pa.

SMOOTH-KUT EXPANSION REAMERS

(Trade Name Registered)

The K-S GASOLINE Telegage



A gasoline gauge on the Dash. Note our half page advertisement in the Saturday Evening Post, August 14th. Write for description and proposition to the trade.

KING-SEELEY CORPORATION

298 Second Street

Ann Arbor, Mich.

Chicago Branch, 2450 Michigan Boulevard



Curtis Pneumatic
Machinery Co.

1957 Kienlen Ave.
St. Louis, Mo.

HALL HONE \$35.

at your
Jobber's

Spring and Solid Pressure in one Hone

LIKUM Alarm LOCK

TYPE A
\$5.00

Locks ignition and sounds
horn if tampered with

TYPE B
\$7.00

LOOMIS - KNIGHT - MILLER, Inc.
SPRINGFIELD - MASSACHUSETTS

A Continued Story of the Industry

READING MOTOR AGE every week is very much like following the growth of the automotive industry in story form.

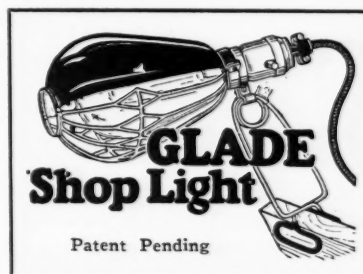
It is as interesting as a fiction serial, and instructive to the point of making better and more prosperous dealers.

Reading MOTOR AGE every week when it comes, assures subscribers that they will stay up to date and profit accordingly.

MOTOR AGE

5 So. Wabash Ave.

Chicago, Ill.



**GLADE
Shop Light**

Patent Pending

Leaves Both Hands Free for Work

Operators using the GLADE Shop Light work with both hands, and see clearly what they are doing. It's easier for the men and better for the job. GLADE Shop Light attaches anywhere, and fastens to the car where you want it. Suitable for all factories, shops and garages.



25,000 sold since June 1st. Order yours today.

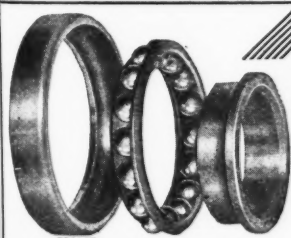
Without Cord \$2.00

With 25-ft. heavy cord and armored plug cap \$3.50

GLADE MFG. COMPANY

209 S. State Street

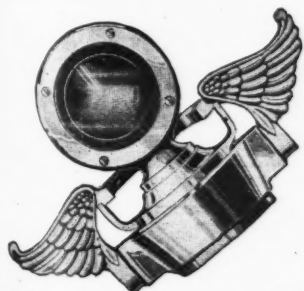
Chicago



Our Engineers Will Gladly Help You

Your blueprints in the hands of our engineers will assure you prompt and accurate information on your Angular Contact Thrust Bearing, Angular Contact Radial Bearing, and Thrust Ball Bearing requirements.

THE BEARINGS COMPANY OF AMERICA, Lancaster, Pa.
Western Sales Office, 1012 Ford Bldg., Detroit, Mich.



The Cap that's making records

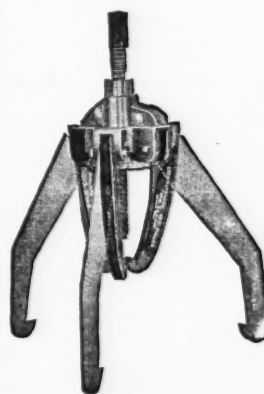
Car owners as well as car dealers have been quick to see the advantages of this lasting cap of bronze. Sales reflect its popularity and the demand is growing every day. Write for information.

The ELLISON
U. S. STANDARD BRONZE
RADIATOR CAP

Prices
Junior Cap \$4.50
Regular size \$6.00

ELLISON BRONZE CO., INC.

Jamestown, N. Y.



for Pulling Jobs!

Removes Parts QUICK!

An instant of adjustment, a few turns of the screw, and the wheel, gear or bearing is off! Greb Pullers enable you to make money on a Flat Rate Basis.

Greb Pullers have been standard for 10 years. Two or three jaw types—also shock type.

Whatever your need in a Puller, we have—and at a price you will be glad to pay.

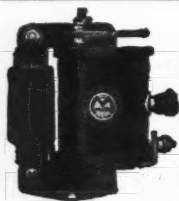
Get in touch with your jobber. If he doesn't have Greb Pullers write us, mentioning his name. Catalog.

**10
DAYS
TRIAL**

THE GREB CO., Inc.

305 Canton Ave.
Stoughton, Mass.

**GREB AUTOMATIC
GRIP PULLER**
BEACH PATENT



Mallory Ignition Coil

Has two primary windings instead of one. Gives a hotter spark, makes easier starting, gives more power, quicker pickup and more mileage. Try it on a sluggish motor. Write for full particulars.

The Mallory Electric Corporation, Toledo, Ohio.



WESTINGHOUSE AIR SPRINGS

The finest known method of shock absorption
THE WESTINGHOUSE AIR SPRING CO.

Factory and General Offices, New Haven, Conn.

New York Chicago Boston Atlanta Philadelphia Cleveland
Los Angeles



Here's the Way to Sell Tire Chains

Let the package they come in display them. By making them easy to buy, you automatically make them easy to sell. Dealers like the WESCO carton. Write.

Western Chain Company
Chicago, U. S. A.

LYCOMING Motors

Fine Fours, Sixes and Eights-in-Line
LYCOMING MANUFACTURING COMPANY, Williamsport, Pa.

Years Ahead in Motor Efficiency

Neutrowound



SUPER-POWER RADIO

Write for Exclusive Territory proposition to Sub-Distributors.

Neutrowound Radio
Mfg. Co.

Homewood, Ill.

Radio Division

Advance Automobile Accessories Corp.

WEL-EVER "OIL CONTROL" PISTON RINGS

The Motor Necessity That Has Made Good
Backed by Seven Years' Satisfactory Service
THE WEL-EVER PISTON RING CO., TOLEDO, OHIO
Sold most everywhere. If your dealer cannot supply you write us.

SCHEBLER The World's Finest CARBURETORS

THE WHEELER-SCHEBLER CARBURETOR CO., INDIANAPOLIS, U.S.A.

The Original
Bosch



Franchise details for selling ORIGINAL BOSCH Automotive Equipment will be sent to any Distributor, Dealer or Service Station on request.

ROBERT BOSCH MAGNETO CO., Inc.
109 West 64th Street New York, N. Y.

ORIGINAL BOSCH units bear the full name, Robert Bosch, and the trade mark shown at left. These are the identifications of Bosch quality—famous since 1887.



The SO-LO JACK

\$6.00 Retail

West of Mississippi \$5.50

4 1/2" LOW—HIGH 15 1/2"

The REAL Balloon Tire Jack

All Steel Construction

POWERFUL—STURDY—EASY TO OPERATE

A Sure Seller with your Trade

SO-LO JACK CO., Inc.

108 Massachusetts Ave., Boston, Mass.

Kawneer SOLID COPPER STORE FRONTS

Write for Special Book Garage Front

THE KAWNEER CO., 3724 Front St., Niles, Mich.

ZENITH CARBURETOR

More
Power
Less
Fuel

Zenith - Detroit Corporation, Detroit, Mich.

Hycor Brake Lining

FOLDED AND STITCHED
HYDRAULIC COMPRESSED

Millions of feet annually installed as factory equipment

THE MANHATTAN
RUBBER MFG. CO.
PASSAIC, N.J.

BRUNNER AIR COMPRESSORS FREE

Write for the Book
"AIR PROFITS"

describing many new uses for compressed air. Shows how to make an air compressor earn greater profits.

BRUNNER MFG. CO.
UTICA NEW YORK



Let us
send our
profit-
boosting
plan.
It's Free.

Thermoid Hydraulic Compressed Brake Lining

FROM THICK
TO THIN
DOWN TO THE
LAST PLY
IT HOLDS



Thirty-seven
BRANCHES

AHLBERG BEARING COMPANY
321 EAST TWENTY NINTH STREET, CHICAGO ILLINOIS



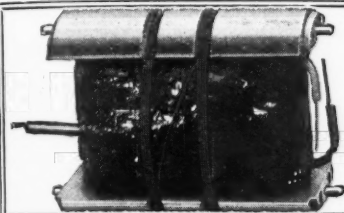
**Stops Pump Shaft Leaks
Immediately and Permanently**
Conneaut Plastic Metallic Packing molds in the fingers to fit stuffing-boxes of any size or shape. It is a repair for the worn shaft or loose bushing. At your jobbers; if not write us.

1 lb. can.....\$1.75 per pound
5 lb. can.....\$1.60 per pound
THE CONNEAUT PACKING CO.
Conneaut, Ohio

Prevent
This

FISK TIRES

*There's a Fisk Tire of extra value in every size,
for car, truck or speed wagon*



Magneto Windings

A Magneto is no better than its winding; you must have the best. The very finest insulation, hot spark, low speed. Beautiful rough gloss varnish finish; no better winding made. Each winding packed in individual box. ALL MODELS. Send in your Old Cores. Guaranteed.

Severson Magneto Engineering Co.
538 Fernwood Ave., TOLEDO, OHIO

THE WALDEN FORE-LITE

Mounted ahead of the radiator and operated like a spotlight from the instrument board, the WALDEN Fore-Lite satisfies a need hitherto filled by make-shifts. Universal fittings. Selling fast wherever introduced. Ask your jobber, or write direct, giving his name.

THE WALDEN CO.

2017 S. Michigan Ave.

Chicago



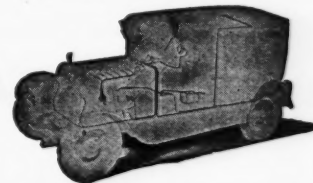
KISSEL

CUSTOM BUILT

Kissel Motor Car Co., Hartford, Wis.

Packard
Cable

The Packard Electric Co.
Warren, Ohio



Transmissions
and Clutches



Trucks, Busses
Passenger Cars

QUICK SERVICE ON COMPLETE UNITS OR PARTS

BROWN-LIFE GEAR CO.

SYRACUSE, N. Y.

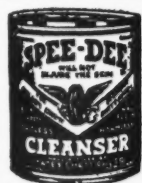


**UNITED STATES
Portable Electric
DRILLS**

Built by the old-
est maker of
Portable Electric
Drills in the
World.

Ask for
Catalog 105

THE UNITED STATES ELECTRICAL TOOL CO.
Cincinnati, Ohio, U. S. A.



SPEE-DEE CLEANS UP for Dealers

Results in quick stock turn-over, with small investment and liberal profits. Without water it removes grease, stains, etc., from hands, clothes, upholstery, paint or enamel. Indispensable in shops, service stations and car kits. List 35c.

Write for discount details.

States Chemical Company
703 W. Fulton St. Chicago, Ill.



THE "BAT" Super-Charger

A practical system of super-charging for passenger cars, trucks, tractors, marine engines, aviation engines, stationary engines, etc. Simple, easy installation. Practical. Prices range as low as \$7.50.



Write for details.

P. H. Webber Company

Racine Industrial Plant, Building No. 12, Racine, Wisconsin

Manufactured and sold under license of P. J. F. Battenburg, Racine, Wis.

LINCOLN
FOR ALL CARS—\$15 to \$40
SHOCK ABSORBERS

**Glareproof
AUTO MIRROR**

"Write Your Own Guarantee"

CLASSIFIED ADVERTISING

PARTS

HOUSE OF A MILLION AUTO PARTS

The largest stock of new and used car and truck parts in the world. We have everything. Always mention model and serial number in order. Write us. All inquiries answered promptly.

DOUGLAS AUTO PARTS CO., INC.
2003-5-7-9 South State St., Chicago, Ill.

AUTO PARTS

SAVES 50% TO 75% ON ALL CARS

New and Used Gears—Springs and Axles—Cylinders—Motors—Rear Systems, etc. Wire or Write

INDIANA AUTO PARTS CO.
608-10 N. CAPITOL AVE., INDIANAPOLIS, IND.
LARGEST CAR WRECKERS IN INDIANA

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Attorney-at-Law and Solicitor of Patents

McGill Building, Washington, D. C.

Patent, Trade Mark and Copyright Law

SITUATION WANTED

Managing Position Wanted—A man of wide executive and successful selling experience in wholesale and retail distribution of passenger cars, would like to connect with distributor with good line of cars. Can produce volume and show profits on new and used cars. Now holding responsible position with distributor. Can furnish reference. If interested write Box 6276, Motor Age, 5 S. Wabash Ave., Chicago, Ill.

BUSINESS OPPORTUNITIES

For Sale—Brick garage, 75x100, with show room. Equipped for general garage work. Chevrolet contract for 103 cars per year. Sales during 1925 were \$208,000.00. Stock and buildings will invoice about \$35,000.00. Deadwood Motor Co., Deadwood, South Dakota.

"Clearing \$400 month with my Haywood Vulcanizer. Some return on a \$350 investment." Tire repairs paying big. We furnish everything. Train you free. Easy terms. Haywood Tire Equipment Company, 1318 South Oakley Avenue, Chicago.

RACING EQUIPMENT

For Sale—Jimmy Murphy's 183-cubic inch Duesenberg Straight Eight with all extra parts, in which he won the French Grand Prix. A. R. Bartold, 150 Westcott St., Rochester, N. Y.



SHAFER
"Self-Aligning"
ROLLER BEARING
 PATENTED

"One of the Best"

"The writer has been with this company for the past eight years and during the time we have used the Shafer Bearings we have had no kick to make. We are very glad to say that this is one of the best bearings we have ever experienced in our cars."

J. W. WEST,
 Also Motor Co.,
 Richmond, Va.

SHAVER BEARING CORPORATION
 6501 West Grand Avenue
 CHICAGO, ILL



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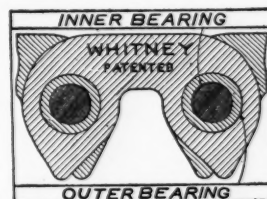
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Selected For
Proved Dependability
And Long Life—

"WHITNEY"
SILENT HIGH MILEAGE CHAINS

Have Made an Unrivalled
Record for Great Mileage



The "Whitney" Double Concentric Joint provides a bearing of the hardened rivet on the INSIDE of the bushing, and a bearing of part of the chain links on the OUTSIDE of the bushing. As a result the total projected bearing area of this joint is nearly twice as great as that of any other silent chain joint.

ASK YOUR JOBBER'S SALESMAN—HE KNOWS



Send for our new Booklet containing car specification list—It's Free

The Whitney Mfg. Co.
Hartford, Conn.

I want that book on chain specifications.

Name.....

Address.....

☐ Service Station ☐ Fleet Owner ☐ Parts Jobber

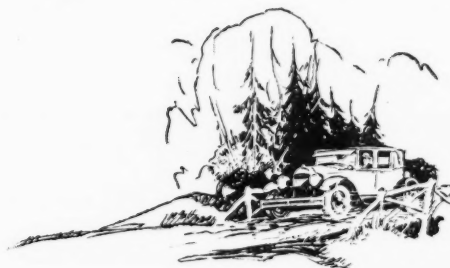


The Exclusive Gabriel Superiorities

A—4½ coils—the patented and exclusive Gabriel construction—give 180 square inches of friction surface and up to 450 pounds of braking action, *and* the free play needed with balloon tires.

B—The spring which keeps the multiple coils in friction.

C and **D**—Base casting and floating casting.



Easier sales and larger profits are possible with Gabriel Snubbers because every Gabriel dealer has behind him the selling influence of a vast army of Gabriel users—almost 5,000,000 of them.

And to this is added the impetus of years of national advertising that has indelibly fixed Gabriel Snubbers in the mind of the motoring public.

37 car manufacturers equip with Gabriels

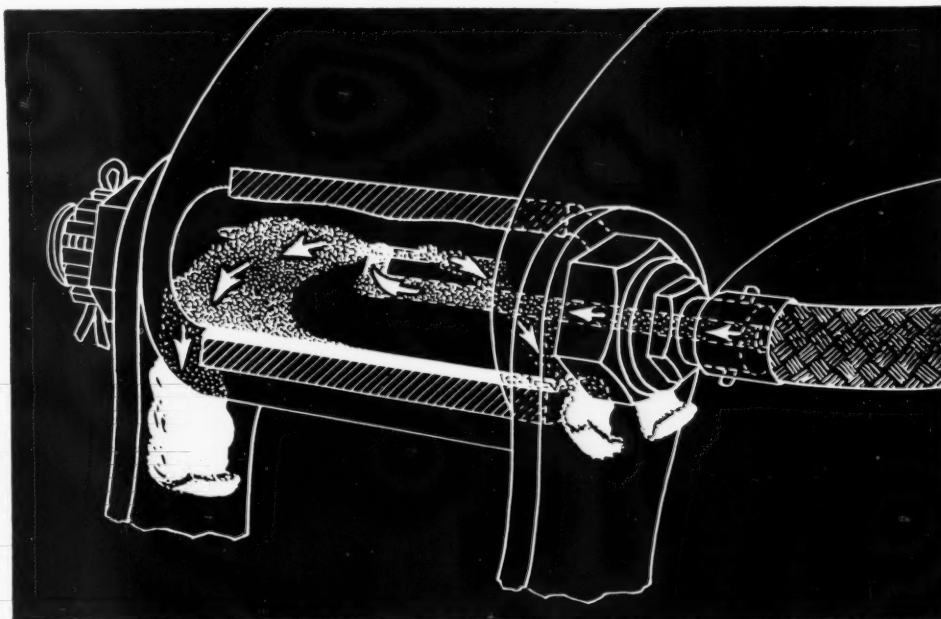
25 drill their car frames for Gabriels

3100 Gabriel stations sell Gabriel Snubbers on a 30-day money-back guarantee

The Gabriel Snubber Manufacturing Co
1415 East 40th Street, Cleveland, Ohio
Toronto, Canada

GABRIEL SNUBBERS

Gabriel—and Only Gabriel—Is a Snubber



A Common Occurrence on Millions of Cars

—and What It Means!

YOU'VE seen it—Grease oozing out either side of a bearing—King bolts—tie rod connections—spring shackles, etc. The owners think it indicates proper lubrication, and usually stop there. They fail to realize the real significance of the condition, as pictured above.

What the picture really means is that the bolt and bushing have become badly worn at point of bearing, leaving a large open space opposite. Then when grease is applied under pressure the grease naturally goes into and out through this open space and not to the point of bearing on which rests the weight of the car. As a consequence, no lubrication is accomplished—and the wear goes on.

When a heavy ribbon of grease shoots thru a bearing quickly it merely indicates badly worn parts—not proper lubrication. Obviously that means more wear—and more rattle!

That is something car owners should know. They should be told WHY chassis bolts and bushings wear faster than any other part of a car,—and WHY they should be renewed at least once every season.

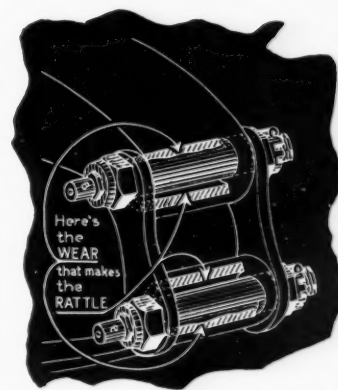
Do you realize the profit possibilities of the tremendous market such a policy would uncover? Think it over—then ask your Jobber salesman to tell you how the Blue Print Line of Bolts and Bushings will help you get those profits.

The Fostoria Screw Co.

307 Blue Print Ave.,

Fostoria, Ohio

Export Office: 30 Water St., New York. Cable Address: Widbloco.
Codes Used: Bentley, A. B. C. 5th Edn., Western Union.



Look at this picture a minute and think what it means. The weight of the car prevents grease effectively reaching the point of bearing, resulting in continual wear. Obviously this wear increases the space between bolt and bushing, permitting a rattle that is both annoying and expensive. This condition can be helped by at least once-a-year replacement of—

King Bolts

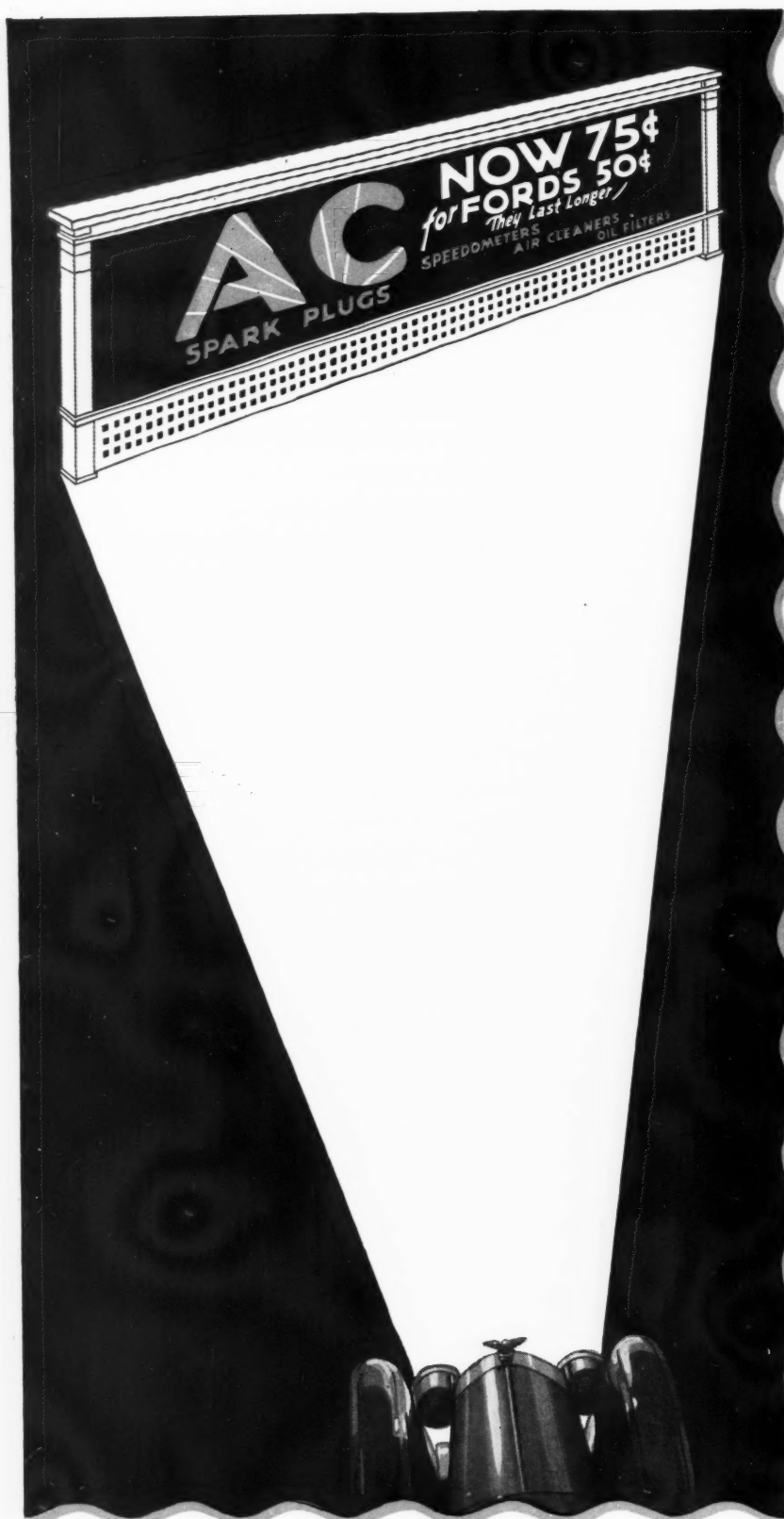
Spring Bolts

Tie Rod Bolts

Steel and

Bronze Bushings

**"Bp" "Made to
Blue Print"**



Why AC Spark Plugs—

Have the biggest demand and the greatest sales possibility for the dealer.

Because—

The following cars and 124 others use them as original equipment.

BUICK
CADILLAC
CASE
CHANDLER
CHEVROLET
CHRYSLER
CLEVELAND
DAVIS
ESSEX
FLINT
HUDSON
JEWETT
KISSEL
MARMON
McFARLAN
NASH
OAKLAND
OLDSMOBILE
PAIGE
PONTIAC
STAR
STEARNS-KNIGHT
WILLS SAINTE CLAIRE

AC equipment business—today more than 50% of the entire car production—offers big sales possibilities because of the assured replacement demand from owners of AC-equipped cars.

Now Popularly Priced

AC or AC Carbon Proof, 75c
AC 1075 (for Fords) . . . 50c

Heavily advertised through painted highway bulletins, national magazines, newspapers and dealer helps.

Likewise they are the most profitable for the dealer to sell.

AC Spark Plug Company

FLINT, Michigan

AC-SPHINX
Birmingham
ENGLAND

Makers of
AC Spark Plugs
AC Speedometers
AC Air Cleaners
AC Air Filters

AC-TITAN
Levallois-Perret
FRANCE

AC Speedometers

The AC Speedometer for Fords—now \$10.00—is a full-sized speedometer, registering speed, total and trip mileage, the same previously sold at \$15.00.

AC Air Cleaners

Prevent dust from entering the engine through the air intake of the carburetor.

Packed complete with all installation attachments—easily mounted and reasonably priced.

AC Oil Filters

Positive protection against engine wear.

Keeps the oil clean, making it unnecessary to change oil every 500 miles.